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(N.H.)

A MONOGRAPH OF THE GENUS SABICEA

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A MONOGRAPH OF THE GENUS SABICEA

BY

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WITH TWELVE PLATES AND TEXT-FIGURES

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PREFACE

Mr. Wernham has devoted some time during the past few years to a revision of the material of the family Rubiaceæ contained in the Herbarium of the Department of Botany, and the Monograph of the genus *Sabicea* is the first of a series of monographs which it is hoped to publish as the result of his study of this family. In the course of his work Mr. Wernham has also studied the collections in the Herbarium of the Royal Gardens, Kew, and in the principal continental Herbaria, and cordial thanks are due to the Directors of these Institutions for the loan of plants and facilities for study.

A. B. RENDLE.

Department of Botany,
March 11, 1914.

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INTRODUCTION

History.—*Sabicea* dates from Aublet's "Plantae Guianenses," published in 1775. Here two species are described—*S. cinerea* and *S. aspera;* both are scrambling plants, as are the majority of the species which have been discovered since.

The generic name was devised by Aublet from the common name for *S. aspera* used by the Galibis of Guiana—**Sabi-Sabi.** Presumably deeming it "barbaric," Schreber, in his "Genera Plantarum," 1789, replaces Aublet's name by *Schwenkfelda*—a name which the present rules for nomenclature happily compel us to discard.

Swartz added a Jamaican species in 1788, *S. hirta*, and Ruiz and Pavon a Peruvian species, *S. umbellata*, in the following year. In 1805 Persoon included a Madagascar plant, *S. diversifolia*, hesitatingly but correctly in the same genus.

In 1818 Humboldt, Bonpland and Kunth published in their "Nova Genera et Species Plantarum, etc.," a fifth species of the genus, *S. hirsuta*. A chronological list of all the species appears on pages 2, 3; and it will be seen that between 1818 and 1849, when our knowledge of West African plants was so substantially increased by the publication of Hooker's Niger Flora, only four more species, all American, were added.

The Niger Flora contains descriptions of the first five species recorded for the African continent. Not until nearly thirty years later was any addition made to the list, when, in 1877, four more African species appeared in the Flora of Tropical Africa, under the authorship of Hiern.

Between that year and the end of 1912 twenty-one additional species have been described (see list), of which sixteen are African, four American, and one is from Madagascar. In the course of investigating the Rubiaceæ of Mr. and Mrs. Talbot's Nigerian collection last year, I was surprised to find so many as four new species of *Sabicea*, and thus I was led to a complete examination of the genus. This has revealed the existence of more than sixty

MAR 20 1922

additional species, all of which are described here, bringing the total number up to one hundred and six.

For the purposes of the present investigation I have examined all the relative material in the National Herbarium, the herbaria at Kew, and in Cambridge University; the Berlin herbarium, and the collection of Krug and Urban; the herbaria of the Museums at Paris and Madrid; the State herbarium at Brussels; the herbaria of Boissier, De Candolle, and Delessert, at Geneva; and the Stockholm herbarium.

I take this opportunity to express my grateful obligations to the following gentlemen for the assistance which they have given me, and the facilities they have provided for my investigation of the several collections under their control:—Dr. Stapf, and the staff of the Kew herbarium; Dr. Moss, curator of the Cambridge University herbarium; Professor Lecomte and his staff at Paris; at Geneva, M. Barbey and his curator M. Beauverd, of the Boissier herbarium, Dr. Briquet, of the Delessert herbarium, and MM. De Candolle; Dr. De Wildeman, at Brussels; and Dr. Prosper Reyes, of the Universidad Central, Madrid. My sincere thanks are due also to Prof. Engler and Dr. Urban for placing at my disposal for a considerable period the valuable material in the Berlin herbarium and the Krug and Urban collection; and to Dr. Carl Lindman for rendering me a similar service in regard to the Stockholm herbarium. I have to record further my great indebtedness to Dr. Rendle, of the National Herbarium, who has been ready throughout with invaluable advice; and to the Trustees of the British Museum, for a substantial grant toward the expense of visiting the various Continental herbaria.

SPECIES IN CHRONOLOGICAL ORDER.

1775	aspera Aubl.
	cinerea Aubl.
1788	hirta Sw.
1789	umbellata (Schwenkfelda) R. & P.
1805	diversifolia Pers.
1818	hirsuta H. B. & K.
1829	grisea Ch. & Schl.
1840	cana Hook.
1841	glabrescens Benth.
	velutina Benth.
1849	calycina Benth.
	capitellata Benth.
	ferruginea Benth.
	venosa Benth.
	Vogelii Benth.

1877 cauliflora Hiern
geantha Hiern
pilosa Hiern
segregata Hiern

1889 novogranatensis K. Schum.

1890 acuminata Baker
Schumanniana Büttner

1892 ingrata K. Schum.

1893 humilis S. Moore

1896 cuneata Rusby
speciosa K. Schum.

1897 Dinklagei K. Schum.
floribunda K. Schum.

1899 arborea K. Schum.
trigemina K. Schum.

1901 Dewevrei De Wild.

1903 bicarpellata K. Schum.
gigantostipula K. Schum.
Gilletii De Wild.
speciosissima K. Schum.

1904 camporum Sprague

1905 discolor Stapf

1906 Laurentii De Wild.
longepetiolata De Wild.

1912 tchapensis Krause

1913 geophiloides Wernham
pedicellata Wernham
Talbotii Wernham
xanthotricha Wernham

NEW SPECIES.

amazonensis
angolensis
angustifolia Boivin MS.
asperula

Barteri
Batesii
boliviensis
brachiata
bracteolata
brasiliensis
brevipes
brunnea
Burchellii

cameroonensis
colombiana
composita
costaricensis
cruciata

Dewildemaniana
dubia
Duparquetiana Baill. MS.

entebbensis
erecta Rusby MS.

flagenioides
fulva

gigantea
glomerata
gracilis
guianensis

Hierniana

Johnstonii K. Schum. MS.

lanuginosa
laxa
Lindmaniana

mattogrossensis
medusula K. Schum. MS.
mexicana
Mildbraedii
mollis K. Schum. MS.
mollissima Benth. MS.
Moorei

orientalis

panamensis
pannosa
paraënsis
parva
parviflora K. Schum. MS.
Pearcei
pseudocapitellata

Robbii
rufa

Schaeferi
setiloba
seua
Smithii
stipularioides
subinvolucrata

Trailii
Trianae

umbrosa
Urbaniana

verticillata

Distribution.—The home of *Sabicea* is in the tropics of Africa, including Madagascar, and of the New World, the large majority (80 per cent.) of the species being scrambling shrubs. The habit of the various species will be dealt with presently. In only two cases does the genus appear outside the tropics, namely, the widely-distributed *S. hirsuta*, which occurs in extra-tropical south-eastern Brasil (Santa Catharina), and *S. grisea*, which is recorded once from Paraguay.

There are three main areas of distribution: 1st, the African continent; 2nd, Madagascar; 3rd, America.

Details of the distribution of all the species are indicated in the accompanying Tables. For the present purpose the African continent has been divided into seven, and America into nine, sub-areas.

The region richest in species is Western Africa, and particularly the Cameroons,* where no less than 35 species, 24 of them endemic, have been found. In Senegambia, the most northerly point of its occurrence in the Old World, the genus is represented by one species only, *S. venosa;* the same species occurs fairly generally over West Africa, as far south as the Quango, a tributary of the Congo. In Angola *S. venosa* is replaced by the allied, but quite distinct, *S. angolensis;* here it is accompanied by only one other species, the aberrant *S. parviflora*. *S. calycina*, a very well-marked species, has a distribution similar to that of *S. venosa*, with the exception that the Gold Coast is its most northerly and westerly station.

Eastern Tropical Africa is almost as poor in species as Angola, only three having been found in this region: *S. arborea*, a small tree, and *S. entebbensis* and *S. orientalis*, both related to *S. venosa*.

S. discolor and *S. Vogelii* occur from Sierra Leone to French Guinea; *S. speciosa* from Togoland to the Cameroons; *S. gigantostipula*, *S. geophiloides*, *S. Robbii*, and *S. floribunda* in Nigeria and the Cameroons. *S. capitellata*, *S. Laurentii*, *S. Dinklagei*, and *S. segregata* have been found in the Congo basin as well as in the Cameroons. *S. orientalis*, apparently common in German East Africa, has been recorded once as far west as the Mongala river, a tributary of the Congo.

All the other African species are endemic (see Table, p. 6) for the sub-areas named:—1 in Sierra Leone and Liberia, 8 in the Ivory Coast to Nigeria district, 24 in the Cameroons, and 10 in the Congo basin.

The 5 Madagascar species are all confined to that island (see, however, the comment on *S. diversifolia* under that species), and are peculiar in habit and structure.

In the New World the northern and western limit of

* It must be remembered, however, that more attention has been paid by collectors to this region than to the others, at least in recent years.

distribution is the Oaxaca district of Mexico, where the single species *S. mexicana* occurs. *S. hirsuta*, which has the widest distribution of any of the species, extends from Guatemala in the north-west, eastward through Central America, along the north of South America to Cayenne; in the west, from Colombia southward to Peru; a disconnected area appears in south-eastern Brasil from Bahia to Blumenau, which is south of the Tropic of Capricorn; and finally, this species occurs in the West Indian islands of Porto Rico and (as a variety) St. Thomas.

The rest of the American species are relatively limited in distribution. *S. brasiliensis* occurs fairly generally over eastern and southern Brasil, and in Bolivia. *S. grisea* extends from Ceara in the north over eastern Brasil to Rio de Janeiro in the south; it is recorded once also from Paraguay, where it is the only species. For the rest, 3 species are peculiar to Central America; *S. hirta* is the only species found in Jamaica, where it is endemic; this, *S. hirsuta*, and *S. cinerea* being the only West Indian species. Eleven species are peculiar to western South America, 3 to Guiana, Venezuela and Trinidad, 5 to the Amazon basin, 3 to Bolivia, 3 to Matto Grosso (Central and Southern Brasil), and 2 to Eastern Brasil.

In all, 62 species belong to the tropics of the African continent, 5 to Madagascar, and 39 to the New World.

Altitude.—In many cases the altitude of occurrence of the species is not given. From those cases in which we have information in this regard it would appear that the genus occurs at all levels from the sea-shore (*S. Robbii*) to 8000 feet (*S. cauliflora*); and it is gathered that the species in many cases prefer a damp habitat—moist meadows, river-banks, etc. The following have not been found below 5000 feet: *S. arborea*, 5000–6000 feet; *S. Schaeferi*, 5,800–6,500 feet; *S. cauliflora*, 5000–8000 feet.

Habit.—The large majority of the species are shrubs; two are trees—*S. arborea* of Zanzibar and *S. gigantea* from the Congo basin. The following are small, prostrate, and more or less herbaceous: *S. medusula*, *S. Mildbraedii*, *S. geophiloides*, and *S. Barteri*, all West African, and the Brasilian *S. parva*. The manifestly shrubby habit serves to distinguish *Sabicea* at sight from *Coccocypselum*, an American genus of herbaceous species.

		Senegambia.	Sierra Leone; Liberia.	Ivory Coast to Nigeria.	Cameroons and Gaboon.	Congo Basin.	Angola.	Tropical East Africa.	Madagascar.
EUSABICEA	LAXÆ	venosa ——— ——— ——— ———	venosa discolor ——— ——— Vogelii	——— discolor ——— Schumanniana? Vogelii	venosa ——— ——— ——— ——— cameroonensis laxa	venosa ——— orientalis Schumanniana ——— mollis longepetiolata pseudocapitellata Dewildemaniana Smithii	——— ——— ——— ——— ——— angolensis parviflora	——— ——— orientalis ——— ——— entebbensis	——— ——— ——— ——— ——— ——— ——— ——— ———
	SESSILES	———	———	speciosa [bracteolata]	speciosa Batesii medusula speciosissima	——— Mildbraedii dubia	———	——— arborea	——— seua acuminata angustifolia diversifolia [verticillata]
	CAPITATÆ	——— ——— ——— ——— ——— ———	——— ——— ——— ——— calycina ——— ferruginea	Robbii ——— ——— ——— calycina geophiloides brevipes Talbotii Johnstonii lanuginosa pedicellata Barteri	Robbii Laurentii Dinklagei capitellata calycina geophiloides Schaeferi ingrata gracilis Duparquetiana trigemina tchapensis cruciata composita brunnea fulva brachiata rufa pilosa	——— Laurentii Dinklagei capitellata calycina ——— Gilletii gigantea Dewevrei	——— ——— ——— ——— ——— ———	——— ——— ——— ——— ——— ———	——— ——— ——— ——— ——— ———
	FLORIBUNDÆ	——— ———	——— ———	floribunda ———	floribunda segregata	——— segregata	——— ———	——— ———	——— ———
STIPULARIOPSIS		———	———	gigantostipula xanthotricha	gigantostipula stipularioides bicarpellata Urbaniana cauliflora Hierniana geantha	———	———	———	———

Table showing the distribution of the various sections of *Sabicea* in Africa. Species in each section common to two or more areas are given first; the others follow in order of affinity, as far as possible.

		Mexico.	Central America.	West Indies.	Colombia, Ecuador, Peru.	Trinidad, Venezuela, Guiana.	Amazon basin.	South (Tropical) Brasil and Bolivia (B).	Eastern Tropical Brasil.	Extra-tropical Brasil and Paraguay.
EUSABICEA	LAXÆ	mexicana	panamensis costaricensis	hirta	colombiana subinvolucrata setiloba Pearcei umbellata novogranatensis asperula	colombiana	paraënsis	erecta (B) humilis Moorei cuneata (B) boliviensis (B)		
	SESSILES		hirsuta ,, β flagenioides	hirsuta ,, β cinerea	hirsuta cana glomerata camporum	hirsuta ,, β amazonensis cinerea glabrescens aspera velutina guyanensis	hirsuta β amazonensis glabrescens parva mollissima Burchellii	brasiliensis	hirsuta ,, γ grisea brasiliensis pannosa Lindmaniana	hirsuta grisea
CAPITATÆ					Trianae		Trailii	mattogrossensis		
STIPULARIOPSIS . . .					umbrosa					

Table showing the distribution of the various sections of *Sabicea* in America. Arrangement as in the case of the African Table.

Most of the species of *Sabicea*, moreover, are climbers of the most primitive type—namely, scrambling plants, reaching a height of 10 to 15 feet, more or less, unprovided with hooks, tendrils, or other climbing devices. They climb over hedges or scrub bordering the tropical forest, often along river-banks; we have seen that they prefer moist situations for the most part. The exceptions to the scandent habit, apart from the herbs just now mentioned, number barely a score in all; but they are of especial interest, for they indicate an important trend of evolution within the genus—namely, a tendency from the climbing to the erect habit. That this, and not the reverse, has been the course of evolution seems to be evidenced, e.g. by the migration of the genus from the long established conditions of the tropical scrub to open situations in the derivative campos or savannahs, where it is represented by a few erect forms; and these latter are mostly of a specialised habit. They may be either bushes of moderate size—such as the Bolivian *S. erecta* and the Central American *S. panamensis;* or they may be quite small and subherbaceous, like *S. brasiliensis*, which grows in the plains of Brasil and Bolivia up to an altitude of 5000 feet; or *S. camporum*, barely 2 feet high, which occupies a similar place in the Colombian plains. Two more species, *S. humilis* and *S. Moorei* of Matto Grosso, complete the list of American erect forms, with one exception, *S. umbrosa*—to be referred to presently; these are lowly, erect and subherbaceous, a foot or 18 inches high at most. In all these cases the erect species are more or less nearly related to typically scandent species of the neighbouring thickets. Thus *S. erecta* has obvious affinities with *S. setiloba; S. panamensis* with *S. paraënsis; S. brasiliensis* and *S. camporum* with *S. cana*, *S. guianensis* and their allies; *S. humilis* and *S. Moorei* with *S. umbellata*, etc.

The case is somewhat different with the five Madagascar species; for they are mostly erect bushes with no very clear affinities with any of the rest. The habit of *S. angustifolia* is significant in its subsarmentose nature, and it may represent the nearest surviving ally of an ancestral climbing race; but in other respects this species is closely allied with *S. acuminata*, *S. diversifolia*, and *S. seua*. We shall discuss the affinity of these four species later. They are peculiar in their characters of anisophylly (and this is least pronounced in the relatively primitive

S. angustifolia), and of fimbriated or laciniate stipules—features which are found combined in only two other species, *S. Mildbraedii* and *S. dubia*, both subherbaceous forms from the Congo region. Anisophylly occurs in two other species (*q. v.*), both from the Cameroons, *S. medusula*, a creeping herb, and *S. Batesii*. In the latter the inequality of the leaves is so extreme as to result in the complete suppression of one leaf of each nodal pair, so producing a pseudo-alternate arrangement. The same condition appears in some of the ultimate twigs in *S. diversifolia*.

The fifth Madagascar species, *S. verticillata*, differs from all the others of the genus in having a whorled leaf-arrangement—three subequal leaves arising at each node ; and the aberrancy of this species is further marked by the solitariness of the flowers. It resembles the other Madagascar species, however, in having laciniate stipules.

The remaining exceptions to the climbing habit are the nine species which I have grouped as a subgenus **Stipulariopsis.** These are more or less lank erect suffrutescent forms with large and relatively few leaves, and ample stipules which conceal or tend to conceal the dense axillary exinvolucrate clusters of flowers. All are West African, with the exception of the Colombian *S. umbrosa*. The megaphylly and general habit is suggestive of the origin of this subgenus through a geophilous tendency; and indeed this is foreshadowed in forms like *S. humilis* and *S. Moorei*, which display, especially in the latter case, a tendency to the formation of few and large leaves; while the low-growing erect shoots, arising from a stout root-stock, point in the same direction, namely, to the geophilous habit. *S. xanthotricha*, however, is, according to Mr. Talbot, its discoverer, a rather large bushy shrub, and should perhaps not be classed in this geophilous subgenus. In this case *S. xanthotricha* and *S. Batesii* would constitute the two sole exceptions to my primary two-fold division of the genus, based, as will be seen from the key, on the size of the leaves. In the case of *S. Batesii* the megaphylly is not improbably correlated with the extreme anisophylly—a compensatory tendency to maintain the effective assimilating area (see Pl. VII, 4).

Critical floral characters.—The critical features of the genus are displayed in the floral characters. The valvate

æstivation of the corolla, coupled with the multiovular ovary maturing into a many-seeded berry, leads indubitably to the inclusion of *Sabicea* in the tribe Mussændeæ. The generic characters are as follows. In the first place the inflorescences are axillary, in contrast with the terminal inflorescences in one or two of the better known genera of the tribe, such as *Mussænda* and *Isertia*. Secondly, the inflorescence, though frequently associated with a very definite involucre of free or sub-free bracts, is never *enclosed* in a campanulate involucre (see Pls. VIII, IX, X). This is the principal critical distinction between *Sabicea* and the allied African genus *Stipularia*. The latter comprises two or three species of shrubs, with silky or felted indumentum, and large elliptical or obovate leaves with conspicuous broad foliaceous stipules. *Stipularia* is a near generic ally of *Sabicea*, and we shall need to revert to it later.

For the rest, the calyx of the 4–5-merous hermaphrodite flowers has in most cases elongate or conspicuously large lobes. As in other Mussændeæ, and indeed in many other Rubiaceæ generally, the lobes in the individual flower are frequently unequal and of differing shapes—a tendency which reaches a climax in the familiar petaloid calyx-lobe of many species of *Mussænda*;* but in *Sabicea* the inequality is in no case very pronounced. The calyx-limb is divided with few exceptions below the middle, often almost to the base, usually into linear, sometimes lanceolate or subulate, occasionally ovate or elliptical lobes. The corolla-limb, on the other hand, has typically a relatively long narrow tube, but little widened above, with proportionately short lobes.

This relative elongation of the calyx-lobes, and of the slender corolla-tube distinguishes *Sabicea* from the allied *Urophyllum*, in which the calyx-limb is shortly, sometimes minutely, toothed, and the corolla-tube is relatively short and broad. The flowers in the latter genus are moreover noticeably small. In *Sabicea* the total length of the corolla is very rarely less than 6 or 7 mm. (*S. hirsuta*, *S. asperula*)—and this is above the maximum for *Urophyllum*; the most usual length is from 1·5 cm. to 2 cm. The latter is exceeded in *S. Schumanniana* (1·8 to 2·5 cm.), *S. amazonensis* (2·5 cm.), *S. pilosa* (2·5 cm. to 3·5 cm.), *S. speciosa* (3–4 cm.), *S. umbrosa* (upwards of 4 cm.), and finally

* See *Journ. Bot.* li. (1913), 233.

in *S. speciosissima*, with flowers 10 cm. long. The smallest flowers occur in *S. Mildbraedii*, with corolla only 4 mm. long, *S. camporum*, 5–6 mm., and in the section Floribundæ—two species in which the corolla does not exceed 5 mm. in length. The flowers of most of the representative species are figured in Plate XII.

The gynæcium is in the large majority of the species isomerous with the corolla, or, at any rate, the carpels number more than two; the ovary is usually 4–5-locular, as in *Urophyllum*.* The ovary is, however, bilocular in most of the species of Stipulariopsis, and in two or three species of Eusabicea, e.g. *S. arborea*, *S. segregata*; but the total number of species with only two loculi in the ovary does not exceed about half a score. This is in contrast with *Stipularia*, in which the ovary is frequently two-chambered—a curious, if not significant, point of similarity to the large-leaved subgenus of *Sabicea* mentioned above (v. also *infra*, p. 17). The ovary matures to a small round 4–5-locular berry containing several seeds; in *Stipularia* the fruit is much larger and ellipsoidal.

CLASSIFICATION OF THE SPECIES.

Having enumerated the constant and critical characters which determine the genus, we have now to deal with the variable features, and to attempt to discover if possible the lines along which evolution has operated within the genus.

The principal characters which vary with the species, but which are constant for each individual species, are 1st, the indumentum, especially of the leaves; 2nd, the nature of the inflorescence, whether relatively lax or dense and compact, whether sessile or pedunculate, involucrate or ex-involucrate; 3rd, the actual length of the calyx-lobes† and their shape; and 4th, the shape and relative size of the corolla-tube and lobes.

Indumentum.—The leaf-indumentum is remarkably constant for each species, particularly in regard to the presence or absence

* A polycarpellary ovary—or, at any rate, an ovary composed of more than two carpels—is the exception in Rubiaceæ, being found in about one-tenth, only, of the total number of species composing the family (see *New Phytologist* xi. 223). In the remaining nine-tenths the ovary is bicarpellary, and, with very rare exceptions, bilocular.

† In cases where the calyx-lobes are appreciably unequal, the largest is referred to invariably in what follows, throughout.

of felt or arachnoid covering on the lower surface. In fact, *S. venosa β. anomala* is the only exception to this constancy, which is thus of considerable value in the practical determination of the species. In a few cases the arachnoid covering is deciduous or scanty, the pilose part of the indumentum predominating; such may be observed in specimens of *S. mollis*, *S. orientalis*, and *S rufa*. None of the species are quite glabrous, except, perhaps, *S. geantha;* nor do many even approach the glabrous condition; *Sabicea* is essentially a hairy genus.

Inflorescence.—We have already hinted at a primary division of the genus, based upon the vegetative habit; the further grouping of the species is here made to depend upon the inflorescence. The latter is of three distinct types, namely, 1st, more or less lax at maturity, the inflorescence-branches being apparent; 2nd, closely compacted, both flowers and inflorescence sessile or subsessile; and 3rd, a compact involucrate pedunculate head.

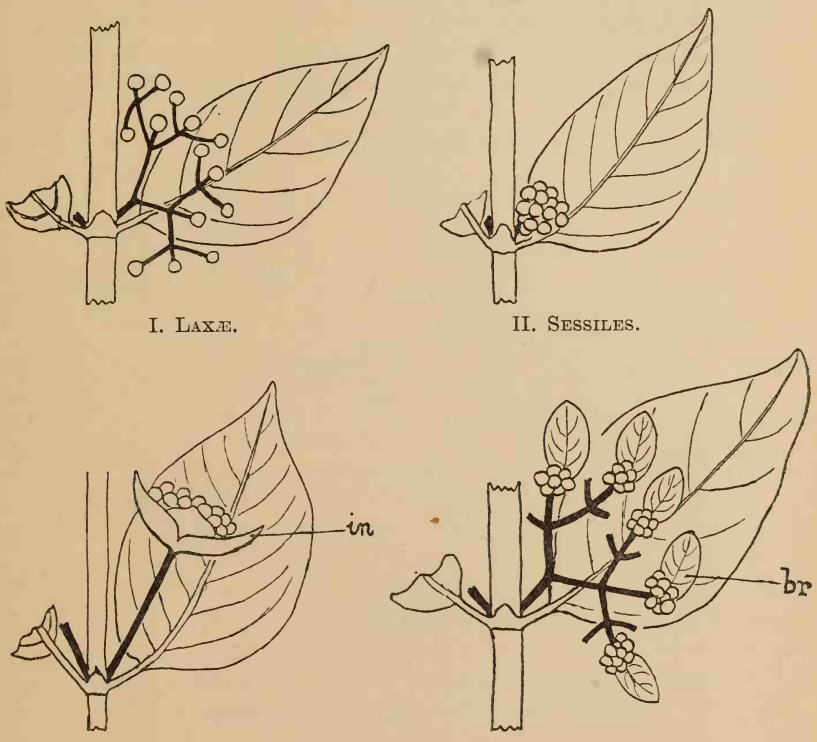
It will, perhaps, be readily conceded that the last-named type is relatively the most advanced, the looser and less definite type being by contrast the most primitive; just as the capitulum of Compositæ is more advanced than the umbel of Umbelliferæ or than any diffuse inflorescence.

We will for the moment set aside the subgenus Stipulariopsis, with its 9 large-leaved, erect, geophilous species. I have divided the remaining 97 species, which constitute the subgenus Eusabicea, into four sections, in accordance with the inflorescence. In the first two sections, including 63 species, the bracts are usually inconspicuous, and they do not form a definite involucre. There are one or two apparent exceptions (*S. cinerea*, *S. amazonensis*, Pl. V, 3, see key) in which the bracts are often manifest and subinvolucrate; but the inflorescence is never a compact and definite involucrate stalked head as in the third section, Capitatæ.

The first section (Laxæ) includes those species—31 in all—in which the inflorescence is more or less lax at maturity (Fig. 1). In the 32 species of the second section,* Sessiles, the branches of the inflorescence, the peduncle and pedicels are all suppressed or almost so, the flowers being disposed in dense axillary clusters—save in those very rare cases in which the flowers are solitary or

* The doubtful *S. verticillata* and *S. bracteolata* are included.

subsolitary. The third section, Capitatæ, includes 32 species. In the fourth, Floribundæ, the inflorescence is diffuse and compound, each partial inflorescence being associated with a



I. Laxæ. II. Sessiles. III. Capitatæ. IV. Floribundæ.

Fig. 1.

Diagram showing types of inflorescence in each of the four sections of Eusabicea. *in*, involucre; *br*, bract. Flowers represented by small circles.

more or less conspicuous foliaceous bract (see Fig. 1). Two species only—*S. segregata* and *S. floribunda* (see Pl. X, 3, 4)—are classed in this section.

The main course of evolution within the genus would appear to have been a progress from Laxæ—as represented by *S. venosa*, *S. paraënsis*, etc.—chiefly along two diverging lines, one producing Sessiles, the other Capitatæ. On *primâ facie* grounds it is not improbable that the lax preceded the compact type

of inflorescence in the course of descent. The latter would arise by the suppression of the floral axes in response to the biological advantage of dense aggregation of the flowers ; for by this means greater conspicuousness is secured for the purpose of attracting insect-visitors, which can, at the same time, pollinate a large number of flowers at a single brief visit. Such is the advantage of the head in Compositæ—the most successful single

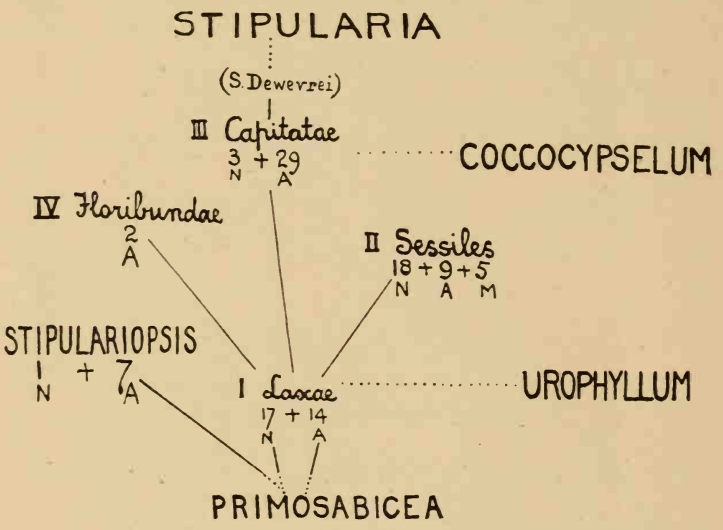


FIG. 2.*

Showing the origin and affinities proposed for the various groups of *Sabicea* and their relation to allied genera.

group of flowering plants, if we may judge by the number of their species—the verticillaster of Labiatæ, and so on.

Further, the suggestion that Sessiles and Capitatæ have originated along separate lines emanating from an ancestral stock, represented by Laxæ, is supported by the circumstances of the distribution of the species over the Old and New Worlds. The broad general affinities here proposed for the various groups of *Sabicea* are indicated in the accompanying diagram (Fig. 2), which indicates also the distribution. Thus Laxæ are distributed fairly evenly between Africa (A) and America (N), for of the

* An African species of *Stipulariopsis*, *S. stipularioides*, has been added since this diagram was completed ; this makes 8 species for Africa instead of 7 as shown.

31 species included in this section, 17 belong to the latter and 14 to the former. Capitatæ on the other hand are, with three exceptions, confined to the African continent; while of the 30 species of Sessiles, 18 are American against 8 African, the remaining 4 being the aberrant species from Madagascar (M). Moreover, the 8 African species are far from typical of Sessiles, for they include the curious *S. medusula*, *S. Mildbraedii*, *S. Batesii*, and *S. dubia*, with their exceptional habit, anisophylly, etc.; the tree *S. arborea;* and the large-flowered *S. speciosa and S. speciosissima*. The eighth, *S. parviflora*, has an inflorescence like *S. aspera*, with a tendency to laxity, and is barely evolved from the Laxæ ancestry.

Broadly speaking, then, it may be supposed not unreasonably that the genus existed simultaneously in Africa and America as an ancestral race (Primosabicea) with lax inflorescence, represented at the present day by e.g. *S. venosa* in Africa and *S. paraënsis* in America. In the latter area of distribution evolutionary development operated in the direction of producing dense, sessile axillary clusters by the suppression of all the floral axes. In Africa, on the other hand, a special type of inflorescence was evolved—the stalked, involucrate capitulum. By the progressive development of the latter a new genus ultimately arose—*Stipularia;* this, it is significant to note, is confined to the African continent. *S. Dewevrei* and *S. gigantea* represent a transition to this genus in regard to the structure of the involucre (see descriptions of these species).

It is not improbable that the diffusely compound inflorescence of *S. floribunda* and *S. segregata* represents a third type of advance upon the primitive Laxæ; and in accordance with this idea, I have indicated this third section Floribundæ as an off-shoot from the Laxæ line represented by *S. venosa* (Figs. 2, 3). The three types of elaborated inflorescence, together with the primitive Laxæ type, are shown diagrammatically in Fig. 1; and the four types are critical for the four sections of the subgenus *Eusabicea* respectively. The Floribundæ type may be conceived as derived from the Laxæ type by the substitution of a group of flowers for a single flower in the latter, and the addition of a more or less conspicuous bract to each group so formed (see Pl. X, 4).

A more detailed evolutionary tree is appended (Fig. 3), in which

all the species of *Eusabicea*,* with their mutual affinities as proposed in this monograph, are indicated. The lower circle includes Laxæ within its circumference, and the upper, Capitatæ. Near the point of contact between these two *S. Vogelii* lies; the inflorescence in this species varies from relative laxity to the compactness of a stalked head, with a more or less well-marked involucre. It may be regarded as transitional between the two sections. In the same way *S. aspera* possesses an inflorescence of varying laxity, and is transitional between Laxæ and Sessiles.

The diagram shows that the American Sessiles are connected upon one continuous shoot of the evolutionary tree which bears all the American Laxæ upon its lower branches. The three American Capitatæ—*S. Trailii*, *S. mattogrossensis*, and *S. Trianae*—have manifest affinities with Laxæ as represented by *S. umbellata*, *S. hirta*, etc.

Of the subgenus *Eusabicea* there remain for consideration the Sessiles of Africa (8 spp.) and Madagascar (4 spp.)—12 species in all. These are, as we have seen, more or less isolated in affinity; but their features of mutual resemblance suggest the possibility of a common ancestry in the Primosabicean stock—except, perhaps, in the case of the large-flowered and imperfectly-known *S. speciosissima* (Pl. XII, 40). *S. diversifolia* of Madagascar and *S. arborea* from the neighbouring district of Zanzibar, are similar in their erect habit, general facies and indumentum. We would suggest that *S. arborea* and *S. speciosa* may be the Sessiles-descendants of a Laxæ-line represented by *S. parviflora* and *S. Smithii*, two African species on the border between Laxæ and Sessiles (see Fig. 3). In a precisely similar way we have proposed that the African Capitatæ may be the descendants of a Laxæ-line represented by *S. Vogelii*, which is on the border between Laxæ and Capitatæ. In the latter case, however, we have been able to suggest the ancestry more remotely in Laxæ, tracing it to typical species of that primitive section such as *S. venosa* and *S. discolor*.

S. Batesii, *S. Mildbraedii*, *S. dubia*, and *S. medusula*—all Sessiles of the African continent—are linked by many points of resemblance, the most striking being anisophylly; they are referable, in all probability, to a relatively recent common ancestry on a line emanating, presumably, from the *S. arborea*

* Except the doubtful *S. bracteolata* and *S. verticillata*.

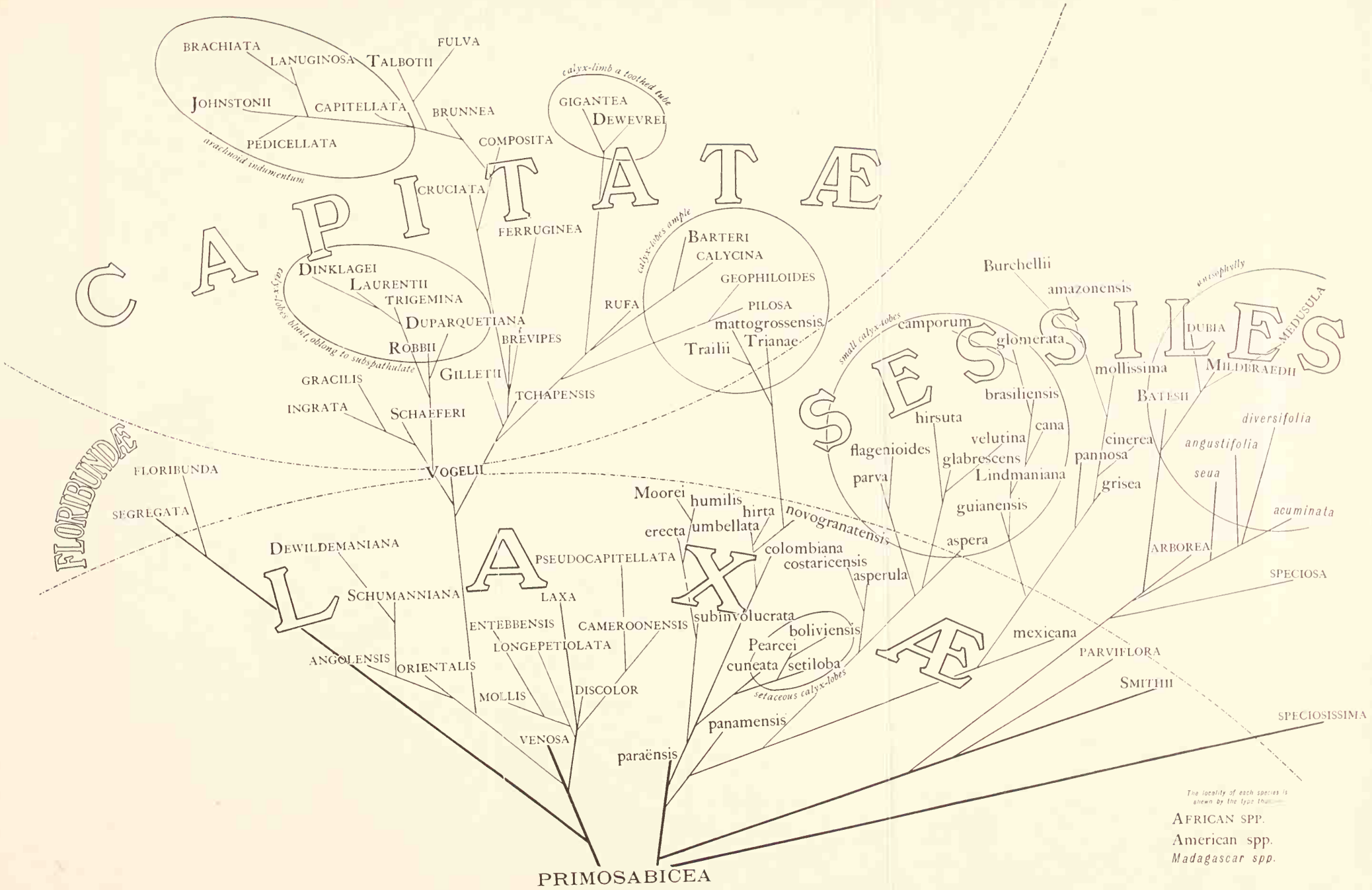


FIG. 3.—DIAGRAM SHOWING THE ORIGIN AND MUTUAL AFFINITIES PROPOSED FOR THE SPECIES OF EUSABICEA.

[*To face page* 16.

line just mentioned. The four Madagascar species (Fig. 3) may have arisen similarly. *S. speciosissima*, our knowledge of which is based upon a single indifferent specimen, may have originated independently as indicated in the diagram.

Turning now to the subgenus *Stipulariopsis*, it is suggested that it may have arisen by the operation of a tendency to geophily from forms resembling *Eusabicea;* and *S. humilis* and *S. Moorei*, we have seen, reflect the actual progress of such a tendency. These two species are, however, American, and they have no manifest connection with *S. umbrosa*, the only American species included in *Stipulariopsis*. The non-climbing African species reveal no tendency to geophily; they are bushes, like *S. diversifolia*, trees, like *S. arborea*, or prostrate herbs, like *S. medusula*.

Nor is there manifest relationship between any African species of *Eusabicea* and any species of *Stipulariopsis;* and the details of the origin of the latter subgenus must remain in doubt for the present. Its inclusion in *Sabicea* is justified on the basis of the critical floral characters already enumerated; and it could be given separate generic rank only upon the inconstant and unsatisfactory ground of vegetative characters and the number of carpels in the ovary. The inflorescence in *Stipulariopsis* is usually of the Sessiles type, the only manifest exception being *S. geantha*, in which the inflorescence is lax. For the rest, it will be seen from the figures of the flowers that they are essentially Sabicean in appearance and external structure (see Pl. XII).

The Calyx has proved to be of considerable value in classifying the species. There is a clear distinction between species with calyx-lobes attaining 5 mm. or more in length at an early stage, and accrescent in the fruit, and species in which the lobes are rarely more than about 3 or 4 mm. even in the fruit. Thus, this distinction separates *S. cana* with short calyx-lobes from *S. cinerea* with long lobes; *S. venosa* from *S. Schumanniana;* and several others. This criterion is concerned only with the *actual* length of the lobes; *relatively* to the tube the calyx-lobes are nearly always long and narrow—this being one of the generic characters. Only in a few exceptional cases are the lobes relatively broad or shorter than the tube (see

Pl. XII, 58, 97, 99, etc.). It will be seen from the figures that the calyx-lobes are generally linear-oblong to lanceolate, and often markedly acute-acuminate.

Many of what we may call the secondary, tertiary and higher branch-systems of our evolutionary tree are determined by the size and character of the calyx-lobes. Thus the whole subsequent branching (see Fig. 3) from the lines leading from *Primosabicea* respectively to Floribundæ, *S. venosa*, *S. paraënsis*, *S. Smithii*, etc., determined for the most part by the inflorescence, may be regarded as primary branch-systems; the lines in question are thickened in the diagram. The subsequent branching from the immediate tributaries of these lines will then be secondary branch-systems; similarly for the tertiary systems, and so on. To take examples, the species on the branching from the *venosa—orientalis*-line are characterised by long calyx-lobes. The *Robbii—Dinklagei* system exhibits a tendency to blunt, sub-spathulate lobes. In the *gigantea—Dewevrei* system the calyx-lobes are short and broad, and are appreciably shorter than the tube of the limb. In the *pilosa—calycina* system the lobes tend to a broadly lanceolate or ovate contour, as do also those of the American *novogranatensis—mattogrossensis* line. The calyx in the *paraënsis—aspera* system is short-lobed; in the *paraënsis—mexicana—grisea* system it is long-lobed.

The longer type of calyx-lobes is sometimes subulate (*S. diversifolia*, *S. acuminata*, *S. angustifolia*, *S. speciosa*, *S. speciosissima*; subulate-setaceous to setaceous in *S. Urbaniana*, *S. xanthotricha*, and *S. ferruginea*. There is evidence, too, of the evolutionary development of a calyx-limb with more or less setaceous lobes 4–5 mm. long from a typically short-lobed calyx—i.e. in the progress from *S. paraënsis* to *S. cuneata*, *S. setiloba*, etc.

The more important divergences from the typical linear calyx-lobe have been mentioned; for the rest, the reader is referred to the Plates, in which figures of the flower in the typical cases appear.

The Corolla.—The range of variation is here less extensive, perhaps, than in the calyx. The most extreme differences are found in the actual size, as already noted (p. 10). There is a certain amount of variety, but not much, in the width of the

corolla-tube and in the amount of widening in passing from the base to the mouth. The ratio between length of lobes and length of tube is never so much as $\frac{1}{2}$, the maximum being about $\frac{4}{5}$ in *S. Robbii* (Pl. X, 2), in which the corolla-tube is almost funnel-shaped, 3–4 mm. wide at the mouth, and the broad lobes are spreading; it represents an extreme in this regard. In *S. entebbensis*, on the other hand, the tube is narrowly cylindrical throughout and the minute lobes are erect (see Pl. XII, 15), and there are many transitional forms between the two.

* * * * *

Further, minor points of specific difference, such as shape of leaves and stipules, etc., will appear in the descriptions of the species and in the key, necessarily more or less artificial, which follows. It will be realised that it is impossible to arrange the species in a single continuous series, such that each is between its two nearest allies. The order adopted is based, however, upon the suggested affinities as far as possible.

SYSTEMATIC ACCOUNT

Sabicea Aublet, Pl. Guian. i. 192, t. 75, 76 (1775); Benth. & Hook. f. Gen. Pl. ii. 72. *Schwenkfelda* Schreb. Gen. 123 (1789); Willd. Sp. Pl. i. 982 (*Schwenkfeldia*).

Calycis limbi lobi saepius lineari-oblongi, plus minus elongati, raro subfoliacei, ampli, vel breves et obtusi. *Corollae* tubus saepius angustus insuper parum ampliatus; limbi lobi pro rata breves tubi dimidium nec attingentes, valvati. *Stamina* 4–5; antherae lineares, dorso affixae, obtusiusculae, inclusae. *Discus* annularis, crenulatus. *Ovarium* subglobosum, saepius 4–5-nonnunquam 2-loculare; stylus erectus, ramis 3–5 raro 2 erectis linearibus obtusis; ovula in loculis numerosa, placentis tumidis ovarii axi affixis. *Bacca* varia, 3–5 raro 2-locularis, polysperma. *Semina* minuta, ovoidea v. angulata, testa tenui, albumine carnoso.

Frutices saepius volubiles, raro repentes vel erecti, interdum suffrutices, rarissime arbores, pilosi, rarissime glabri. *Folia* opposita, rarissime verticillata. *Flores* saepius inter minores, in capitulis vel cymis axillaribus.

Species 106, Madagascariae, Africae et Americae tropicae incolae.

KEY TO THE SPECIES.

A Erect shrubs, usually short, often subherbaceous. Leaves at least 20 cm. long when mature. Stipules large, leafy, wholly or partly concealing the dense inflorescence, or the latter apparently cauliflorous. STIPULARIOPSIS.

Petiole over 20 cm. long (American) ..... 1. *umbrosa.*

Petiole less than 10 cm. long (African).

Lateral leaf-veins usually 15 pairs at most; leaves narrow, sessile, oblanceolate to obovate ..... 2. *bicarpellata.*

Lateral leaf-veins usually more than 20 pairs.

Stipules 7 cm. × 4 cm. ..... 3. *gigantostipula.*

Stipules less than 4 cm. long, or at any rate never so much as 2·5 cm. broad.

Calyx-lobes linear, subulate to filiform, or setaceous.

Corolla 1·5 cm. long or less. Inflorescence compact.

Calyx-lobes hispid with long yellow hairs..... 4. *Urbaniana.*

Calyx-lobes minutely pubescent ..... 5. *xanthotricha.*

Corolla 2·5 cm. long or more.
Calyx-lobes about 1 cm. long, flat, linear; inflorescence more or less compact ..... 3A. *stipularioides.*
Calyx-lobes about 5 mm. long, subulate-setaceous. Inflorescence lax ..... 8. *geantha.*
Calyx-lobes ovate-lanceolate.
Stipules almost glabrous externally, without parallel ribs ..... 6. *cauliflora.*
Stipules appressedly hairy externally, with prominent parallel ribs ..... 7. *Hierniana.*

A[1] Scandent shrubs usually, with leaves rarely so much as 15 cm. long (except *S. Batesii*). EUSABICEA.
B Inflorescence more or less lax in mature flowering stage, its branches or the pedicels apparent; never a compact and involucrate pedunculate head (LAXÆ).
C Partial inflorescences without conspicuous oval or orbicular bracts.
D Fruiting calyx-lobes rarely exceeding 4 mm., or if so, more or less setaceous.
E Leaves variously hairy, never felted, beneath.
Corolla-tube less than 15 mm. long, usually 1 cm. at most.
Hairs on mature corolla-tube dense, spreading... [66. *aspera.*]
Hairs on mature corolla-tube more or less scanty, adpressed.
Hairs on stem and leaves mostly adpressed, giving smooth, silky aspect; or scanty if spreading.
Bracts inconspicuous or obsolete, rarely manifest, then never connate.
Lateral leaf-veins distant, 12 pairs at most (America).
Erect shrub, 6–10 feet high ..... 9. *panamensis.*
Climbing shrubs.
Corolla-tube barely 8 mm. long at most.
Corolla-tube barely 6 mm. long, lobes bearded at apex..... 10. *asperula.*
Corolla-tube 8 mm. long, lobes not bearded at apex ..... 11. *costaricensis.*
Corolla-tube upwards of 1 cm. long... 12. *paraënsis.*
Lateral leaf-veins close, 15 pairs or more (Africa)..... 13. *venosa.*
Bracts at base of inflorescence manifest, more or less connate at first.
Inflorescence remaining more or less compact; calyx-lobes not setaceous... 31. *colombiana.*
Inflorescence becoming very lax; calyx-lobes setaceous..... 32. *umbellata.*
Hairs on stem and leaves dense, patent, giving shaggy aspect.
Climbing or straggling shrubs.
Peduncles barely as long as inflorescence at most; bracts 5 mm. long..... 27. *Pearcei.*
Peduncles 2–3 times as long as inflorescence; bracts over 15 mm. long ..... 28. *subinvolucrata.*

Small, erect, subherbaceous.
Corolla-lobes less than 2 mm. long ..... 29. *humilis.*
Corolla-lobes over 4 mm. long ..... 30. *Moorei.*
Corolla upwards of 17 mm. long. Calyx-limb shortly toothed..... 14. *laxa.*

E¹ Leaves with manifest felt on lower surface (more or less deciduous in *S. mollis* and *S. orientalis*).
Calyx-lobes not subsetaceous (African, except *S. erecta*).
Bracts linear to lanceolate, usually inconspicuous or obsolete.
Corolla narrowly tubular throughout, slender, with minute erect lobes, and dark-coloured..... 15. *entebbensis.*
Corolla appreciably widened above, lobes usually patent, flower white or greenish-white.
Inflorescence remaining relatively compact, peduncle not manifest, or very short.
Calyx-lobes not exceeding 2 mm. long ... 13. *venosa* [*β. anomala.*
Calyx-lobes reaching 4 mm. or more.
Young parts soft with dense spreading hairs, branchlets not arachnoid ... 16. *mollis.*
Young parts smooth with adpressed hairs.
Branchlets arachnoid, petioles rarely more than 1–1·5 cm.
Ovary densely felted ..... 22. *Smithii.*
Ovary hairy, not felted ..... 17. *orientalis.*
Branchlets not arachnoid, petioles 2–3 cm. or longer..... 18. *longepetiolata.*
Inflorescence becoming lax, diffuse, pedunculate ..... 19. *discolor.*
Bracts (2–3) broadly ovate, manifest.
Climbing shrubs (Africa).
Petiole less than 2 cm.; felt grey ..... 20. *cameroonensis.*
Petiole 3·5 cm. or more; felt light brown . 21. *pseudocapitellata.*
Erect bush, 8 ft. high (Bolivia) ..... 23. *erecta.*
Calyx-lobes very narrow, subsetaceous (America).
Peduncle barely as long as the inflorescence.
Ovary arachnoid-felted ..... 24. *cuneata.*
Ovary strigose, not felted ..... 25. *setiloba.*
Peduncle 2–3 times as long as the inflorescence (2 cm. or more), slender..... 26. *boliviensis.*

D¹ Fruiting calyx-lobes increasing to 7 mm. long or more, patent, more or less rigid, and broadly linear to ovate-lanceolate.
Stipules over 1 cm. broad; involucre manifest; long fruiting pedicels (Jamaica) ..... 33. *hirta.*
Stipules much less than 1 cm. broad.
Calyx-lobes ovate-lanceolate, involucre and peduncle manifest ..... 34. *novo-granatensis.*
Calyx-lobes linear to narrow-lanceolate.
Leaves not arachnoid beneath.
Corolla more or less uniformly hairy externally, hairs adpressed.
Corolla 12–15 mm. (Mexico) ..... 35. *mexicana.*
Corolla 18–20 mm. (Africa) ..... 37. *Schumanniana.*

Corolla-tube almost glabrous externally.
Corolla-lobes patent, densely bearded, tube 8–9 mm. long ..... 38. *angolensis.*
Corolla-lobes more or less erect, not densely bearded, tube 10–15 mm. long ..... 39. *Vogelii.*
Leaves with rather scanty but manifest arachnoid indumentum beneath ..... 36. *Dewildemaniana.*

C[1] Inflorescence becoming very lax, diffuse, and compound; partial inflorescences associated with conspicuous broad bracts (FLORIBUNDÆ).
Bracts suborbicular..... 103. *floribunda.*
Bracts narrowly oval, or lanceolate..... 102. *segregata.*

B[1] Inflorescence and flowers closely sessile in mature flowering stage; or flowers rarely solitary (SESSILES).
Calyx-lobes conspicuously subulate or setaceous, usually 5 mm. long at least.
Corolla 3 cm. long or more.
Corolla 10 cm. long, flowers solitary or subsolitary... 40. *speciosissima.*
Corolla 3–4 cm. long ..... 41. *speciosa.*
Corolla less than 2 cm. long.
Stipules entire; leaves mostly obovate, not lengthily acuminate; prostrate herb, rooting along stem. 42. *medusula.*
Stipules laciniate, pectinate, or fimbriate; leaves lanceolate to ovate, acuminate; erect or suberect shrubs, 6 ft. high or more (Madagascar and Mascarene Islands).
Leaves hairy above, never very unequal.
Leaves subcoriaceous, lanceolate, branchlets pubescent, corolla 1·3–1 5 cm. long ..... 43. *acuminata.*
Leaves submembranous, linear-oblong, branchlets arachnoid-glabrous, corolla 6·5 mm. long..... 44. *angustifolia.*
Leaves arachnoid to glabrous above, very unequal in upper twigs—appearing alternate ..... 45. *diversifolia.*
Calyx-lobes flat, appreciably broad.
Leaves verticillate, usually 3 in a whorl ..... 105. *verticillata.*
Leaves opposite.
F Calyx-lobes about 5 mm. long, or more, in the flower, accrescent.
Stipules laciniate; leaves at each node very unequal 46. *seua.*
Stipules subentire; leaves equal at each node, or almost so.
Leaves with manifest felt beneath.
Leaves arachnoid above, otherwise glabrous; bracts conspicuous, subinvolucrate..... 47. *cinerea.*
Leaves variously hairy, not arachnoid, above.
Bracts conspicuous, subinvolucrate.
Corolla exserted only a few mm. beyond the erect calyx-lobes ..... 48. *mollissima.*
Corolla exserted 1 cm. beyond the erect calyx-lobes..... 49. *amazonensis.*
Bracts not conspicuous in adult flower.
Fruiting calyx-lobes long setaceo-acuminate ..... 50. *pannosa.*
Fruiting calyx-lobes more or less rigid, linear-oblong, not markedly acuminate..... 51. *grisea.*
Leaves not felted beneath..... 52. *Burchellii.*

F[1] Calyx-lobes less, usually much less, than 5 mm. long in the flower, and not much accrescent.
Flowers not solitary.
Leaves with a light-coloured felt beneath.
Leaves subequal.
Inflorescence not felted.
Corolla-tube 1 cm. long, shaggy with long spreading hairs; young parts rufous ... 53. *velutina.*
Corolla-tube 7 mm. long at most, with scanty adpressed hairs.
Corolla-tube 7 mm. long ..... 54. *Lindmaniana.*
Corolla-tube 3-5 mm. long.
Cymes hairy; corolla-tube barely 4 mm; small, erect, subherbaceous ..... 55. *camporum.*
Cymes subglabrous; corolla-tube 5 mm. 56. *glomerata.*
Inflorescence clothed with light-coloured felt.
Leaves hairy above, more or less rough.
Branchlets arachnoid (America).
Erect shrub; calyx-lobes ovate, not acuminate ..... 57. *brasiliensis.*
Climbing; calyx-lobes lanceolate, setaceo-acuminate ..... 59. *guianensis.*
Branchlets patent-pilose (Africa)..... (*Smithii.*)
Leaves glabrous above, except sometimes on the midrib, often arachnoid.
Twining shrub; ovary 4-locular (America) 58. *cana.*
Tree; ovary bilocular (Africa) ..... 63. *arborea.*
Leaves at each node very unequal (Africa).
Leaves hairy above (except in *S. Mildbraedii* var. *glabrescens*), mostly less than 15 cm. long, stipules laciniate.
Leaves elliptical or oval, 12 cm. × 6·5 cm. at most ..... 60. *Mildbraedii.*
Leaves obovate, reaching 15 cm. × 8·5 cm. 61. *dubia.*
Leaves glabrous above, except midrib, 20 cm. long or more; stipules entire ..... 62. *Batesii.*
Leaves variously hairy, not felted, beneath.
Stipules broadly ovate, often reflexed.
Corolla-tube over 1 cm. long, with spreading hairs throughout ..... 64. *glabrescens.*
Corolla-tube less than 6 mm., glabrate below, hairs adpressed above ..... 65. *hirsuta.*
Stipules lanceolate, linear, or setaceous, not reflexed.
Stipules lanceolate or linear-oblong.
Climbing shrub ..... 66. *aspera.*
Creeping undershrub with prostrate rooting stem..... 67. *parva.*
Stipules setaceous.
Leaf acute at base (Yucatan)..... 68. *flagenioides.*
Leaf rounded at base usually (Africa) ... 69. *parviflora.*
Flowers solitary or subsolitary, with 2 bracteoles close under the ovary..... 104. *bracteolata.*

B² Inflorescence a compact pedunculate head, invested by a conspicuous involucre (CAPITATÆ).
Leaves variously hairy, never felted, beneath.
Calyx-lobes linear to narrowly lanceolate, acuminate, acute, longer than the tube of the limb.
Hairs on calyx-lobes spreading, or if ascending, very dense.
Peduncle usually very short; at most 1·5 cm.
Heads upwards of 2·5 cm. in diameter.
Leaves with subcordate or rounded base, petiole 1·5 cm. at most ..... 70. *brevipes.*
Leaves with acute base, petiole elongate, to 3 cm. or more.
Involucral bracts rarely exceeding 1 cm. broad, longer than broad ..... 71. *Gilletii.*
Involucral bracts over 2 cm. broad, broader than long ..... 72. *tchapensis.*
Heads not more than 1·5 cm. in diameter.
Corolla-lobes very short..... 88. *Talbotii.*
Corolla-lobes half as long as the tube..... 89. *fulva.*
Peduncle 2 cm. long or more.
Climbing shrub, leaves about 12 cm. × 5 cm. ... 73. *Schaeferi.*
Prostrate herb, rooting along stem; leaves about 4 cm. × 2 cm. ..... 77. *geophiloides.*
Hairs on calyx-lobes adpressed closely, more or less scanty.
Peduncle 5 mm. long..... 95. *Duparquetiana.*
Peduncle 2–2·5 cm. long ..... 96. *Robbii.*
Calyx-lobes shortly oblong, very obtuse, often spathulate, not longer than the tube of the limb, with closely adpressed hairs or glabrate.
Heads nearly 2 cm. in diameter; peduncles very short ..... 97. *trigemina.*
Heads less than 1 cm. in diameter; peduncles over 1·5 cm. long.
Peduncles hairy. Corolla-lobes 3–4 mm. long or more ..... 98. *Laurentii.*
Peduncles glabrate. Corolla-lobes 1·5 mm. long . 99. *Dinklagei.*
Calyx-lobes ovate or ovate-lanceolate, or as much as 3–4 mm. broad, manifestly longer than tube.
Corolla-tube not more than 1·5 cm. long.
Peduncles strigose-hairy, leaves mostly acute at base (America) ..... 80. *mattogrossensis.*
Peduncles glabrous or nearly so, leaves mostly cordate or rounded at base (Africa).
Climbing shrub 10–15 feet high, flowers white... 83. *calycina.*
Creeping undershrub 1–2 feet, flowers pink ..... 84. *Barteri.*
Corolla-tube 2·5–3 cm. long..... 78. *pilosa.*
Calyx-lobes triangular or ovate, or broadly lanceolate, manifestly shorter than tube.
Involucre barely 1 cm. in diameter (America)..... 79. *Trailii.*
Involucre over 2 cm. in diameter; calyx-limb a toothed tube (Africa).
Climbing shrub; branchlets and peduncles with long spreading hairs ..... 100. *Dewevrei.*
Large tree; branchlets and peduncles glabrous ... 101. *gigantea.*

Leaves with manifest felt on the lower surface (more or less deciduous in *S. rufa*).
Leaves not perfectly glabrous above, at any rate not on mid-rib; young leaves hairy above.
Calyx-lobes narrowly oval (America) ..... 81. *Trianae.*
Calyx-lobes linear, lanceolate, filiform, or minute (Africa).
Fruiting calyx-lobes manifest, at least 2–3 mm. long.
Calyx-lobes not subfiliform; head rarely more than 2 cm. in diameter in flowering stage.
Mature peduncles but sparsely hairy, or glabrate, or minutely pubescent, never felted.
Peduncles rarely more than 2 cm., rigid, sparsely hairy; corolla hairy ..... 74. *ingrata.*
Peduncles 3 cm. or longer, glabrate, slender, curved; corolla glabrous ..... 75. *gracilis.*
Mature peduncles densely hairy, or felted.
Involucre over 1 cm. deep; peduncle over 2 cm.
Hairs on branchlets closely adpressed .... 85. *composita.*
Branchlets densely clothed with spreading red hairs..... 86. *brunnea.*
Involucre not more than 7 mm. deep.
Peduncles seldom so much as 1 cm. long, calyx-lobes rarely so much as 3·5 mm. (sometimes 4·5 in var.) ..... 87. *capitellata.*
Peduncles 5–6 cm. long, calyx-lobes accrescent to 7 mm. in the fruit ..... 90. *Johnstonii.*
Calyx-lobes subfiliform, elongate (over 1 cm.) curling; head 3–4 cm. in diameter..... 76. *ferruginea.*
Fruiting calyx-lobes minute (less than 1 mm.), densely bearded ..... 82. *rufa.*
Leaves perfectly glabrous above, even on the veins; young leaves glabrous or arachnoid, never hairy, above.
Peduncles and branchlets arachnoid-felted or glabrous.
Calyx-lobes short, tooth-like in the flower, early strongly reflexed and adpressed to ovary ..... 91. *pedicellata.*
Calyx-lobes lanceolate, not reflexed.
Corolla arachnoid-glabrous externally, fruits with conspicuous pedicels..... 92. *lanuginosa.*
Corolla densely hairy externally, fruits subsessile ..... 93. *brachiata.*
Peduncles and branchlets hairy, not felted ..... 94. *cruciata.*

Subgenus I. **STIPULARIOPSIS** Wernham.

Frutices parvi saepe subherbacei nec scandentes; *folia* magna 20 cm. longa v. longiora, *stipulis* magnis foliaceis; *inflorescentia* saepius dense conferta sessilis v. subsessilis multiflora, axillaris v. lateralis cauliflora, raro laxiuscula; *ovarium* saepius biloculare.

1. **S. umbrosa** Wernham.

Suffrutex caule procumbente ca. 1-pedalis; *foliis* paucis magnis ellipticis, utrinque angustatis, ad ca. 27 cm. × 15 cm., subcarnosis, utrinque nisi subtus in venis pubescentibus glabris, venis secundariis utrinque 15–22, *petiolo* ad 25 cm. elongato, glabrato; *floribus* candidissimis in verticillis subsessilibus confertis, basibus a *bracteis* latis in setis plurimis ad 2 cm. v. longioribus fimbriatis occlusis; *corollae* extus glabrae tubo insuper ampliato, ad 4 cm. longo, lobis oblongis subacutis ca. 8 mm. longis (Pl. I, 1).

Colombia: Antioquia, in the deep shade of the forest, at 3000 ft., *Kalbreyer* 1837! Hb. Kew.

Remarkable for the great length attained by the petiole. It is the only New World representative of the subgenus.

2. **S. bicarpellata** K. Schum., in Engl. Bot. Jahrb. xxxiii. 337 (1903).

Suffrutex erectus caule brevi simplice lignoso; *foliis* ad 22 cm. × 6 cm. oblanceolatis ad obovatis sessilibus, venis secundariis distantibus, *stipulis* majusculis; *inflorescentia* in foliorum axillis fasciculata; *calycis* totius 3 mm. longi lobis subulatis; *corollae* albae lobis 3 mm. subulatis; *ovario* bicarpellato.

Cameroons: Bipinde, *Zenker* 1041! Kribi, *Mildbraed* 5905! Hbb. Mus. Brit., Kew., Berol., Boiss., Mus. Paris.

Notable for the long, crowded, sessile leaves, oblanceolate in contour, being gradually narrowed from the broad, rounded, distal portion to the base, with large leafy stipules.

3. **S. gigantostipula** K. Schum., in Engl. Bot. Jahrb. xxxiii. 337 (1903).

Suffrutex erectus ad 10-pedalis, caulibus paucis lignosis; *foliis* inter maxima, plerumque oblanceolatis, petiolatis, venis secundariis pluribus approximatis, *stipulis* maximis 7 cm. × 4 cm. *inflorescentias* subsessiles fasciculatas occludentibus; *calycis* lobis oblongo-lanceolatis acutis ad 8 mm. longis; *corolla* ad 2·2 cm. longa (Pl. XII).

S. Nigeria: Oban, *Talbot* 259! Cameroons: *Büsgen* 451! *Ledermann* 595! Bipinde, *Zenker* 2474! *Dinklage* 1011! Hbb. Mus. Brit., Kew., Berol.

The leaves and stipules attain the largest size of any in the genus, and their dense aggregation upon the shoot presents a striking appearance.

3A. **S. stipularioides** Wernham.

Verisimiliter frutex erectus; *foliis* inter maximis obovatis vix acuminatis basi angustatis utrinque nisi subtus obscure in venis sparse sericeo-strigosis glabris, *stipulis* ovatis majusculis

extus sparse pilosis ; *floribus* pedicellatis in cymis alaribus multifloris arcte confertis ; *calycis* subglabri lobis linearibus complanatis acutis inter longiores ; *corollae* extus glabrae tubo longiusculo insuper parum ampliato, lobis brevissimis late triangularibus (Pl. XII).

Cameroons : Batanga, *Bates* 423 ! Hb. Mus. Brit.

The specimen bears but one mature leaf, and this is about 40 cm. × 15 cm., with a rather woody stalk 7 cm. long, and about 25–30 secondary veins on either side of the midrib. *Stipules* 3·5 cm. × 2 cm. *Calyx*-lobes nearly 1 cm. long ; *corolla*-tube 2·5 cm. long.

Near *S. gigantostipula* K. Schum. but distinct in the shape of the calyx-lobes and size of the corolla (Pl. XII).

4. **S. Urbaniana** Wernham.

Suffrutex erectus ad 8-pedalis, caule simplice lignoso ; *foliis* inter maxima, venis secundariis pluribus approximatis, *stipulis* inter majores foliaceis ; *inflorescentiis* fasciculatis sessilibus cauliforis ; *calycis* lobis longis subulatis, pilis patentibus hispidis ; *corolla* inter breviores ; *ovario* bicarpellato (Pl. XII).

Fernando Po, 1950–3900 ft. : *Mildbraed* 7041 ! Hb. Berol.

The stem is more or less hispid with short spreading hairs, and glabrescent. The elliptic leaves are about 20 cm. long and 14 cm. broad, shortly acuminate, with 25–30 pairs of lateral veins ; hispid on both sides with rather sparse, spreading yellowish hairs, more densely on the margin and veins below. The midrib and petiole are densely hairy, the latter about 4–5 cm. long. Stipules membranous, broadly lanceolate, 5·5 cm. × 2 cm., sparsely and locally pubescent on the outside. Flowers white, many together in globular sessile clusters. The subulate or setaceous calyx-segments attain more than 1 cm. in length, almost equalling the corolla, with tube about 1·5 cm. long, silky pubescent externally in the upper half, glabrate in the lower ; lobes lanceolate, not much more than 1 mm. long.

5. **S. xanthotricha** Wernham, in Cat. Talb. Niger. Pl. 42 (1913).

Frutex erectus mediocris ; *foliis* late ellipticis ad 45 cm. × 18 cm., venis secundariis utrinque 24 nec valde approximatis, *stipulis* ovatis 2·7–3·4 cm. × 1·2–2·2 cm. foliaceis ; *inflorescentiis* fasciculatis sessilibus cauliforis ; *calycis* lobis ca. 1 cm. setaceis minute pubescentibus ; *corolla* 1·5 cm. longa extus glabra (Pl. XI, 1–4).

S. Nigeria : Oban, *Talbot* 249 ! Hb. Mus. Brit.

6. **S. cauliflora** Hiern, in Fl. Trop. Afr. iii. 77 (1877).

Frutex erectus ; *foliis* inter majores, venis secundariis utrinque ad ca. 23, *stipulis* ca. 2·8 cm. × 1·5 cm. extus glabratis nec

parallele costatis ; *inflorescentiis* fasciculatis sessilibus caulifloris ; *calycis* lobis brevibus lanceolatis ; *ovario* bicarpellato.

St. Thomas Island, 5000–8000 ft.: *Mann*! Hb. Kew. *Moller* 2! Hb. Berol.

Two specimens in the Kew herbarium bear the name *S.*? *cauliflora*, both collected by Mann, one in St. Thomas Island, the other near the Gaboon River. These appear to be quite distinct. In the former, to which I propose to assign the name *S. cauliflora*, the leaves are conspicuously hairy on both sides, while the ovate membranous stipules are almost glabrous when mature. The hairs on the young parts and petioles are spreading and more or less shaggy. It appears, moreover, to be a montane species, in contrast with the other, which occurs at no great elevation, and for which I propose the name *S. Hierniana*.

7. **S. Hierniana** Wernham.

Frutex erectus ; *foliis* coriaceis ad 37 cm. × 18 cm., utrinque nisi in venis fere glabris, venis secundariis utrinque ca. 24, *stipulis* 3·5 cm. × 1 cm. sericeis, venis prominentibus pilosis parallelis ; *inflorescentiis* abbreviatis fasciculatis caulifloris ; *calycis* lobis lanceolatis breviusculis ; *ovario* bicarpellato.

Gaboon River: *Mann* 918! Hb. Kew. Libreville, *Klaine* 1929! Hb. Mus. Paris. Fernando Po, 600–800 ft.: *Mildbraed* 6288! Hb. Berol.

Rather less than 10 ft. high, leaves obovate or oblanceolate, scarcely acuminate, glabrous except for the silky veins seen from the lower surface, manifestly larger and of firmer texture than in the previous species. Petiole sparsely and appressedly hairy, about 2 cm. long. Stipules tough, lanceolate, acuminate. Calyx-lobes 1–2 mm. long.

8. **S. geantha** Hiern, in Fl. Trop. Afr. iii. 78 (1877).

Frutex erectus 10-pedalis ; *foliis* ca. 28 cm. × 13 cm., glabris, venis secundariis utrinque ca. 25, *petiolo* 3–4 cm., *stipulis* ovato-triangularibus extus glabris 3–4 cm. × 1·5–2 cm., acuminatis ; *inflorescentiis* laxiusculis prope caulis basin lateralibus ; *florum* pedicellis gracilibus ad 9 mm. ; *calycis* lobis subulatis v. setaceis ca. 4–6 mm. longis ; *corolla* 1·8 cm.–2·5 cm. longa extus glabra, lobis ovatis obtusis ; *ovario* bicarpellato (Pl. XII).

Gaboon : Sierra del Crystal, *Mann* 1728 ! Hbb. Kew., Mus. Paris.

Remarkable for the complete glabrousness of the leaves, which extends even to the veins, petioles, and stipules—a rare feature in this genus.

Subgenus II. **EUSABICEA** Wernham.

Frutices saepius scandentes raro erecti, rarissime herbae repentes v. arbores; *folia* mediocra longitudine 15 cm. nisi in sectione *Floribundis* nonnunquam vix ad 20 cm. rarissime excedentia; *ovarium* saepius 4–5-loculare, rarissime bicarpellatum.

Sectio i. Laxæ Wernham.

Inflorescentia in maturitate plus minus laxa, ejus ramulis vel pedicellis manifestis, nunquam capitulata involucrata necnon pedunculata.

9. **S. panamensis** Wernham.

Frutex erectus 6–10-pedalis ramulis dense et appresse flavo-sericeis; *foliis* ovalibus vix acuminatis apice valde obtuso ca. 7–8 cm. × 3·5–4 cm., supra sparsim longiuscule strigosis subtus pariter nisi in venis prominentibus sericeo-strigosis indutis, *petiolo* 1–1·5 cm. longo, *stipulis* ovatis subacutis ca. 8 mm. × 4 mm.; *inflorescentia* laxiuscula densissime flavo-strigosa 2–3 cm. diam. attingente, pedunculo pro rata brevi (ca. 5–10 mm.), *bracteis* lanceolatis 2–3 connatis vix subinvolucrantibus nec saepe conspicuis; *floribus* candidis inter minores pedicello ad 8 mm. v. longiore accrescente; *calycis* lobis linearibus demum patentibus vix 3 mm. longis; *corollae* extus strigosae tubo ca. 6–8 mm., lobis lanceolatis acutis 2·5 mm. longis apice barbato (Pl. XII).

Panama: Chagres, *Fendler* 181! Hb. Kew.

10. **S. asperula** Wernham. *Manettia asperula* Ball, in Journ. Linn. Soc. xxii. 142 (1886).

Frutex alte scandens ramulis dense sericeo-strigosis; *foliis* ovalibus breviuscule acuminatis 9–12 cm. × 4–4·5 cm., supra sparsim longiuscule strigosis, subtus pariter nisi in venis dense strigosis indutis, venorum lateralium paribus 10 raro excedentibus, *stipulis* latis ovatis v. subrotundis; *inflorescentia* laxiuscula ca. 1·5 cm. diam. sericeo-strigosa, pedunculo ad 1·5–2 cm., *bracteis* paucis linearibus nec involucrantibus; *calycis* lobis ad 3–4 mm. saepius patentibus linearibus subsetaceis; *corollae* tubo extus sparsiuscule strigoso vix 6 mm. longo, laciniis lanceolatis acutis 2·5 mm. apice barbatis; *bacca* sparse patente piloso ca. 6 mm. diam. a calycis laciniis ad 5 mm. accretis coronata (Pl XII).

Colombia: Shady places, coast near Buenaventura, *Ball*! Hb. Kew.

A distinct species, characterised chiefly by its small corolla with bearded lobes.

11. **S. costaricensis** Wernham.

Frutex verisimiliter subscandens, ramulis novellis dense flavo-sericeis deinde sparsim appressiuscule pilosis demum glabrescentibus; *foliis* ellipticis v. oblongis acuminatis ad ca. 12 cm. × 4·3 cm. apice subacuto, basi saepius subcordatis, supra nisi in venis saepius impressis strigillosis glabratis, subtus pariter nisi in venis prominentibus flavo-strigosis indutis, *petiolo* dense strigoso ad 1·5 cm. longo, *stipulis* ovali-oblongis 1 cm. × 8 mm. excedentibus, apice rotundato; *inflorescentia* laxiuscula vix 2 cm. diametro, *bracteis* paucis nec involucrantibus lanceolatis ad ovalibus, his acuminatis obtusis ad 7 mm. × 4 mm., pedunculo nec manifesto vel ad 5 mm. longo; *calycis* lobis latiusculis oblongis flore vix 3 mm. longis fere glabris; *corollae* extus sparsim strigillosae tubo cylindraceo vix 8 mm. longo, lobis patentibus 2 mm. longis apice nec barbatis; *ovario* dense flavo-strigoso (Pl. XII).

Costa Rica: Buenos Aires, in hedges, *Pittier* 6712! and on the Savannah, *Pittier* 4025! Hbb. Mus. Brit., Kew., Boiss., Brux. *Pittier* 2904! (Hb. Mus. Brit.), from woods about the bay of Salinas, probably is referable to this species; but the specimen bears no corollas.

Near *S. asperula*, from which it is distinguished chiefly by the size and indumentum of the corolla; and *S. colombiana*, in which the bracts are much larger and subinvolucrate, and the calyx-lobes longer. The flower-buds in the present species are characteristic, being very stout, oblong or spindle-shaped, acuminate and subacute, and densely covered with yellow silky appressed hairs.

12. **S. paraënsis** Wernham. *S. umbellata* Pers. var. *paraënsis* K. Schum., in Mart. Fl. Bras. VI. vi. 304 (1889).

Frutex scandens ramulis strigosis; *foliis* majusculis ca. 11–12 cm. × 5 cm. ovatis acuminatis, *petiolo* ca. 1 cm. longo, venis 10–12 paribus subdistantibus supra sparsissime hirto-puberulis v. glabratis subtus pariter nisi in venis prominentibus appresse strigosis indutis, *stipulis* oblongo-ovatis ca. 1 cm. × 6–7 mm.; *inflorescentia* inter laxiores sparsiuscule strigosa, ad 2–3 cm. longa × 4–5 cm. lata, pedunculo 1–1·5 cm. longo, *bracteis* inconspicuis nec involucrantibus; *calycis* lobis flore vix 2 mm. longis subsetaceis nec 3 mm. excedentibus; *corollae* extus sparsiuscule strigosae tubo gracili ca. 1 cm. longo insuper vix ampliato lobis erectis oblongo-linearibus vix 2 mm. longis; *bacca* pisiformi sparse appresse strigosa (Pl. XII).

Brasil: Juruá Miry, Amazonas prov. *Ule* 5669! Peru: Sarayacu, *Castelnau*! Hbb. Kew., Berol., Deless., Mus. Paris.

The exinvolucrate inflorescence, and much larger flowers with smaller calyx-lobes, distinguish this species sharply from *S. umbellata*. The name and synonymy adopted above is based on the plant quoted, which bears the varietal name in Schumann's own writing. According to the account in the Flora Brasiliensis (*loc. cit.*), the same species

occurs in the vicinity of Pará (*Martius*), in Peru (*Poeppig* 1939) and also in Venezuela; but I have had no opportunity of examining the specimens in question.

13. **S. venosa** Benth., in Hook. Niger Fl. 399 (1849). *S. Kolbeana* Büttner, in Verh. Bot. Ver. Brand. xxxi. 78. *S. affinis* De Wild. in Ann. Mus. Congo, Sér. V. i. 77.

Frutex scandens ad 19–23-pedalis ramulis sparse strigosis; *foliis* ovato-oblongis acuminatis ca. 8–9 cm. × 4–5 cm., *petiolo* ad 2·5 cm., supra scabrello-pubescentibus v. glabratis, subtus pariter nisi in venis approximatis 15 paribus v. plurimis strigosis indutis, *stipulis* ovalibus pro rata parvis vix 8 mm. × 4 mm.; *floribus* albidis v. dilute brunneis v. flavo-viridibus; *inflorescentia* laxiuscula ramulis strigosis v. glabrescentibus nec 2–3 cm. toto excedente, *bracteis* lanceolatis plerumque obtusis ad 8–9 mm. longis nec conspicuis nec involucrantibus; *calycis* lobis lanceolatis ad ovatis plerumque obtusis vix 4 mm. attingentibus; *corollae* extus sparsiuscule strigillosae tubo 8–9 mm. lobis lanceolatis acutis vix 2 mm.; *bacca* alba strigillosa glabrescente 7–8 mm. in diam., succo rubro (Pl. XII).

Senegambia: Karkandy, *Heudelot* 821! Sierra Leone: *Afzelius*! *Don*! *Scott Elliot* 5276! *Smeathmann*! *Smythe* 55! Liberia: *Dinklage* 2224! Ivory Coast: *Jolly* 97 (in part)! Cameroons: Buea, *Preuss* 872a! *Reder* 1154! Yaunde, *Zenker* 675! 719! Congo: Quango R., *Büttner* 440! French Congo, damp places, *Lecomte* C 92! C 99! Bangala, *Demeuse* 261! Bumba, *Pynaert* 42! Sabuka, *E. & M. Laurent*! Lukombe, etc., Kasai, in manihot plantations, *Sapin* Y 34! Leopoldville, *Allard* 146! Kisantu, *Gillet* 159! 357! 1390! *Vanderyst*! Djuma Valley, *Gillet* 2760! 2779! Hbb. Mus. Brit., Kew., Berol., Boiss., Brux., De Cand., Deless., Holm., Mus. Paris.

A variable species. *S. Kolbeana*, founded on Büttner 440, appears distinct at first sight on the grounds of differences in the indumentum and looser venation; but the transitional features displayed by other examples of *S. venosa* lead me to regard Büttner's plant as no more than a form of *S. venosa*. I have examined the type-specimens of *S. affinis* at Brussels, and they are clearly of the same species as typical *S. venosa*. The advent of more material may, however, reveal the presence of more than one species among the specimens available at present. The description on the label of E. & M. Laurent's Sabuka plant—"*petit arbre* le long des rivières . . ."—is suggestive; but the specimen as it stands is inseparable from *S. venosa*. Allard's Leopoldville plant bears, as a common name, the words "*Modila Dila*."

Var. **anomala** Wernham.

Foliis subtus discoloribus, lanugine laevi griseo indutis, *calycis* lobis brevissimis.

Congo: Eala, *Pynaert* 515 (in part)*! Bouga, Sanga R., *Schlechter* 12658! River-banks, Lolika, Mosseka, *Chevalier* 5069! Hbb. Mus. Brit., Kew., Berol., Brux., De Cand., Mus. Paris.

* See *S. pseudocapitellata*, no. 21.

14. **S. laxa** Wernham.

Frutex scandens ramulis appresse strigosis; *foliis* fere ad 15 cm. × 5 cm. ellipticis saepe oblongis utrinque angustatis longiuscule acuminatis obtuso apice, utrinque nisi in venis sparse appresse strigosis glabratis, *petiolo* saepius ad 4·5 cm. elongato, *stipulis* late triangularibus reflexis; *inflorescentia* laxa sparse appresse pilosa, pedunculo communi nec manifesto, *bracteis* lanceolatis inconspicuis nec involucrantibus; *floribus* candidis breviter pedicellatis; *calycis* limbi dentibus brevibus nec accrescentibus triangularibus acutis tubum nec superantibus; *corollae* extus densiuscule appresse sericeae tubo gracili inter longiores ad 2 cm. v. longiore, lobis erectis acutis lanceolatis 3 mm. longis (Pl. II).

Cameroons: Bipinde, *Zenker* 4020! 4072! 4567! Lolodorf, *Staudt* 237! Up to 2600 ft. Hbb. Mus. Brit., Kew., Berol., Brux., De Cand. Deless., Mus. Paris.

Distinguished readily by the lax inflorescence, the long slender silky corolla and short calyx-teeth, and also by the elongated petioles and secondary veins more or less distant.

15. **S. entebbensis** Wernham.

Frutex scandens parvus ramulis strigosis mox glabratis; *foliis* ovalibus ca. 6–7 cm. × 3–3·5 cm. breviter acuminatis apice subacuto, supra scabrello-pubescentibus subtus in venis strigoso-sericeis aliter densiuscule arachnoideo-lanuginosis, *petiolo* 1 cm. longo, *stipulis* pro rata angustis ovato-lanceolatis 5–6 mm. × 2–2·5 mm.; *inflorescentia* inter laxas strigillosa, *bracteis* nec conspicuis; *calycis* lobis inter brevissimos mox reflexis; *corollae* fuscae extus nisi insuper strigillosae glabratae tubo ca. 7 mm. longo insuper nec ampliato, lobis minutiusculis erectis (Pl. XII).

Uganda: Entebbe, 3900 ft., *Brown* 296! Hb. Kew.

Distinct in the lanceolate stipules and the small dark-coloured flowers with short calyx-lobes and tubular corolla with very small lobes.

16. **S. mollis** K. Schum. MS. *S. venosa* Benth. var. *villosa* K. Schum., in Ann. Mus. Congo, Sér. II. i. fasc. 2, p. 31 (1900).

Frutex scandens ramulis pilorum patentum indumento molli villosis nec arachnoideis; *foliis* ovalibus ad 8–9 cm. × 4 cm. basi saepius obtusis, apice obtuso, breviter acuminatis, *petiolo* villoso vix 1 cm. longo, utrinque qua ramuli praesertim subtus in venis molliter villosis, subtus in juventute etiam minute arachnoideo-lanuginosis; *inflorescentia* molliter villosa inter laxiores tamen compactiuscula, pedunculo communi saepius manifesto, *bracteis* dum adsint lanceolatis nec conspicuis; *calycis* lobis lineari-oblongis mox ad 4 mm. accrescentibus; *corolla* vix

6–7 mm. longa pallide violacea extus nisi in lobis sparsim barbatis glabra, tubo insuper ampliato; *bacca* sparse pilosa globosa ad 1 cm. diam., pedicello gracillimo ad 5 mm. (Pl. XII).

French Congo: Ogooue, N'jobe, *Thollon* 104! Achouka, *Dybowski* 157! Congo: Bingila, woods, *Dupuis*! Bakulu, *Claessens* 113! Lusombo, *Claessens* 161! Kasai, *Pogge* 981! Hbb. Mus. Brit., Kew., Berol., Brux., Mus. Paris.

Dupuis' plant cited above is the type of K. Schumann's variety of *S. venosa* (*supra*). I have examined all the available material, and it seems clear that the indumentum, venation, and calyx-characters justify the complete separation of this plant from *S. venosa*, and its inclusion in the same species with Pogge's Kasai plant. The latter is *S. mollis* K. Schum. MS.; and it is appropriately named, being readily identifiable by the soft velvety indumentum which covers the leaves, branchlets, and inflorescence-axes.

17. **S. orientalis** Wernham.

Frutex scandens ramulis pilis appressis laevibus saepius etiam arachnoideis; *foliis* ovalibus v. oblongis 7 cm. × 3 cm. ad 10 cm. × 4·5 cm. basi rotundatis v. obtusis, *petiolo* 1–1·5 cm. nonnunquam ad 2·5 cm. arachnoideo, acutis acuminatis, supra scabrello-pubescentibus, infra plus minus arachnoideo-lanuginosis, *stipulis* late ovatis subacutis reflexis; *inflorescentia* laxiuscula inter tamen compactiores appresse pilosa pedunculo brevissimo v. saepius occulto v. obsoleto, *bracteis* inconspicuis; *floribus* albis primo brevissime pedicellatis; *calycis* lobis ad 3–4 mm. lanceolatis acutis acuminatis; *corollae* extus sparse strigosae tubo insuper ampliato vix 1 cm., lobis erectis anguste lanceolatis ca. 2 mm. longis (Pl. I, 2–5).

Congo: Mongala R., thickets, 1430 ft., *Thonner* 202! German E. Africa: Kilimanjaro, Derema, *Volkens* 133! E. Usambara, *Engler* 675! 676! 709! Amani, *Braun* 1936! *Zimmermann* 40! 107! Uluguru, *Goetze* 209! *Stuhlmann* 8872! Hbb. Mus. Brit., Kew., Berol., Boiss., Brux.

The locality of Thonner's Congo plant is very isolated from the rest, and the flowers are said to be "jaunes, rougeâtres à l'exterieur." It may be a western variety, but I can find no critical characters in the available material to separate it from the East African species.

18. **S. longepetiolata** De Wild., in Ann. Mus. Congo, Sér. V. i. 78 (1903–1906).

Suffrutex scandens ramulis laevibus sericeo-strigosis nec arachnoideis, demum glabris; *foliis* ovalibus 6–7 cm. × 3–3·5 cm. acuminatis basi saepius acutis, supra scabrello-pubescentibus subtus arachnoideo-tomentosis, *petiolo* gracili ad 2–3 cm. v. longiore, *stipulis* ovatis acutis; *inflorescentia* laxiuscula inter tamen compactiores strigosa saepius subsessili, *bracteis* haud manifestis;

calycis lobis lanceolatis ad 4 mm. attingentibus; *corolla* inter breviores tubo insuper ampliato; *bacca* albida succo purpureo.

Congo: Kimuenza, *Gillet* 2179! *Mildbraed* 3701! Lukolela, *Kriekels*! Hbb. Berol., Brux.

19. **S. discolor** Stapf, in Journ. Linn. Soc. xxxvii. 105 (1905).

Frutex volubilis alte scandens, ramulis breviter plus minus appresse pubescentibus demum glabris; *foliis* ovalibus ca. 9 cm. × 4·5 cm. acuminatis subacutis basi saepius subrotundis, *petiolo* elongato ad 2–4 cm., supra scabrello-pubescentibus, subtus argenteis dense araneoso-tomentosis, venis utrinque 12–16 conspicuis nonnunquam dilute roseis, *stipulis* ovatis acuminatis; *cymis* plus minus appresse hirsutis demum inter laxissimas, *bracteis* lanceolatis ca. 5 mm. longis, pedunculo manifesto ad 1·5–2 cm. longo; *calycis* lobis ovato-lanceolatis obtusis flore vix 1·5 mm. nec unquam ca. 2·5 mm. excedentibus; *corollae* saepe roseae extus sparsissime hirsutae tubo insuper leniter ampliato 8 mm. longo, lobis triangularibus acutis patentibus ca. 2 mm. longis, *bacca* albida (Pl. XII).

Liberia: Sinoe Basin and Monrovia, *Whyte*! *Dinklage* 2188! 2476! Gola, *Bunting*! Mt. Barclay, *Bunting* 28! Ivory Coast: Borobo, *Chevalier* 17664! Bingerville, *Chevalier* 15343! Gold Coast: *Murphy* 679! Hbb. Mus. Brit., Kew., Berol., Mus. Paris.

Var. *β.* **laxothyrsa** Wernham.

Planta pilis densioribus longioribus patentibus; *foliis* majoribus ad 12 cm. × 5 cm.; *inflorescentia* saepius laxiore, *floribus* paucioribus.

Liberia: Grand Bassa, in moist soil, *Dinklage* 1902! 1903! Hbb. Mus. Brit., Kew., Berol.

20. **S. cameroonensis** Wernham.

Frutex scandens ramulis pubescentibus junioribus araneosis; *foliis* ellipticis ca. 8 cm. × 4 cm. vix acuminatis acutis, *petiolo* vix ad 1·5 cm. longo, supra asperulo-pubescentibus, subtus in venis sericeo-strigosis aliter dense araneoso-velutinis, *stipulis* late ovalibus reflexis; *inflorescentia* dense sericea laxiuscularum inter compactiores, pedunculo ca. 5 mm. longo, a *bracteis* manifestis late ellipticis subinvolucrantibus ca. 3 mm. × 2·5 mm. 2–3 subtensa; *calycis* lobis lanceolatis nec setaceis, nec 3·5 mm. excedentibus; *corollae* tubo extus infra glabrato insuper sparsiuscule strigoso 7–8 mm. longo, lobis extus appresse albido-sericeis lanceolatis ca. 1 mm. longis (Pl. XII).

Cameroons: Molundu, *Mildbraed* 4711! 3000 ft. Hb. Berol.

21. **S. pseudocapitellata** Wernham.

Frutex scandens ramulis novellis dense flavo-sericeis nec araneosis tarde glabrescentibus; *foliis* late ellipticis v. oblongis ca. 10 cm. × 5·5 cm., breviter acuminatis acutis basi saepius angustatis, supra sparsim hirtis, subtus discoloribus lanugine minuto denso dilute brunneo indutis, venis subtus conspicuis fuscis sericeis utrinque secundariis 11–14, *petiolo* subelongato ad 3·5 cm., *stipulis* late ovatis acutis reflexis ca. 5 mm. × 5 mm.; *floribus* in cymis laxiorum inter compactiores multifloris, *bracteis* paucis ovatis ad 7 mm × 3·5 mm. praesertim in juventute subinvolucrantibus demum deciduis, *pedunculo* ad 8–9 mm. dense sericeo; *calycis* lobis lineari-lanceolatis ad 4 mm. longis; *corollae* tubo gracili 7·5 mm. extus infra glabro insuper strigilloso, lobis lanceolatis 1 mm. longis; *ovario* dense flavo-sericeo.

Congo: Eala, *Pynaert* 515 (in part)! Hb. Brux.

With the general appearance of *S. capitellata*, this species is readily distinguished by the inflorescence, which is not a close capitulum with an involucre. The nearest affinity is apparently *S. cameroonensis*, which differs in the indumentum of the leaves and branchlets, and in the short petioles.

22. **S. Smithii** Wernham.

Frutex volubilis ramulis gracilibus patente pilosis necnon arachnoideis; *foliis* ellipticis ad 7·5–8 cm. × 3·5–4 cm. utrinque acuminatis acutis, supra asperulo-pubescentibus subtus dense breviter araneoso-tomentosis griseo-discoloribus, venis secundariis utrinque ca. 12–15, *petiolo* 5 mm., *stipulis* ovatis subobtusis extus insuper glabrescentibus intus glabris ca. 5 mm. × 4 mm. mox reflexis; *floribus* saepe in fasciculis alaribus sessilibus confertis araneosis, inflorescentia nonnunquam laxescente; *calycis* lobis oblongo-linearibus ad ca. 4 mm. longis subacutis, nisi in margine ciliatis glabratis demum plus minus reflexis; *fructu* sparse piloso necnon araneoso (Pl. XII).

Congo: *Chr. Smith* 59! Hbb. Mus. Brit., Kew.

The phyletic position of this species is notable, on account of its transitional position between Sessiles and Laxæ (see p. 16, and Fig. 3).

23. **S. erecta** Rusby MS.

Frutex 8-pedalis ramulis dense patente hirsutis; *foliis* suborbicularibus ad ellipticis v. ovato-oblongis 5·5 × 4 cm. ad 11 × 5·5 cm., supra hispidulis subtus densiuscule araneoso-lanuginosis, *petiolo* ad 1·5 mm. longo, *stipulis* late ovatis mox reflexis ca. 6 mm. × 6 mm.; *inflorescentia* laxiuscularum inter confertiores subglobosa dense patente-pilosa, pedunculo ad ca. 2 cm. longo, *bracteis* 1–2 suborbicularibus manifestis acutis 7 × 5 mm. nec involucrantibus; *calycis* lobis lanceolatis acutis ad 3–3·5 mm.

nec subsetaceis; *corollae* extus strigosae tubo ca. 3–4 mm., lobis lanceolatis 2 mm. longis (Pl. XII).

Bolivia: Tumupasa, *Williams* 446! 590! 1800 ft. Hbb. Mus. Brit., Kew.

Notable for its erect habit, rather compact pedunculate inflorescence, and small corolla.

24. **S. cuneata** Rusby, in Mem. Torr. Bot. Club, vi. 47 (1896).

Frutex verisimiliter scandens ramulis griseo-araneosis; *foliis* 10–12 cm. × 4–4·5 cm. ellipticis utrinque acutis acuminatis, supra asperulo-pubescentibus, subtus breviter araneoso-lanuginosis discoloribus, *petiolo* nonnunquam elongato ad ca. 2·5 cm., *stipulis* ovatis 7 mm. × 5 mm.; *inflorescentia* inter laxiores, *bracteis* linearibus ca. 5 mm. longis nec conspicuis, ramulis strigosis araneosis, subsessili vel brevi pedunculo valido ad ca. 5–8 mm. longo, *pedicellis* 3–5 mm.; *calycis* lobis anguste linearibus subsetaceis ca. 5 mm. longis; *corollae* purpureae pilosae 1 cm. longae tubo insuper infundibulari; *ovario* extus griseo-araneoso-lanato (Pl. XII).

Bolivia: between Guanai and Tipuani, *Bang* 1380! Hbb. Mus. Brit., Kew., Berol., Boiss., Deless.

The white felt on the under side of the leaves and on the ovary, and the almost setaceous calyx-lobes, make this species readily identifiable.

25. **S. setiloba** Wernham.

Frutex scandens 10–15-pedalis ramulis dense breviter cinereo-villosis; *foliis* ellipticis 9–11 cm. × 4–4·5 cm. utrinque angustatis acutis, *petiolo* brevi ad 10–12 mm., supra in siccitate nigricantibus hispidulis, subtus dense araneoso-lanuginosis discoloribus, *stipulis* ovatis reflexis; *inflorescentia* inter laxiores tamen confertiuscula maxime vix 1·5 cm. metiente patente pilosa, pedunculo valido ad 5 mm. dense tomentoso nec cymam excedente, *bracteis* nec conspicuis nec involucrantibus; *calycis* lobis subsetaceis ad 3–4 mm.; *corolla* tubulosa extus strigosa vix 1 cm. longa lobis subminutis; *ovario* et *fructu* candido sparse piloso nec araneoso.

Colombia: Santa Cruz, in woods, *Pearce*! Hb. Mus. Brit.

26. **S. boliviensis** Wernham.

Frutex scandens caule juniore molliter dense tomentoso demum glabrescente; *foliis* elliptico-lanceolatis ad ca. 15 cm. × 5 cm. utrinque angustatis acutis, *petiolo* 10–15 mm. longo, supra molliter pubescentibus in siccitate viridibus subtus cinereis araneoso-lanatis discoloribus, *stipulis* majusculis late ovatis ca. 8 mm. × 7 mm. acutis mox reflexis; *inflorescentia* laxarum inter compactiores dense hispidulo-pubescente, pedunculo gracili

pubescente longiusculo cymam 2–3-plo saltem excedente (2 cm.), *bracteis* paucis linearibus ad 8–9 mm. nec involucrantibus; *calycis* lobis angustis subsetaceis ca. 4 mm.; *ovario* extus hispidulo-piloso.

Bolivia: Yungas, *Bang* 384! Hbb. Mus. Brit., Boiss.

27. **S. Pearcei** Wernham.

Frutex scandens ramulis dense molliter tomentosis demum glabrescentibus; *foliis* elliptico-lanceolatis longiuscule acuminatis acutis basi saepius angustatis, *petiolo* brevi raro 1 cm. excedente, utrinque praesertim subtus in venis patule hispidulo-hirsutis nec araneosis, *stipulis* late ovatis majusculis ca. 11 mm. × 7 mm.; *inflorescentia* laxarum inter compactiores ramulis pedunculoque brevi 5–8 mm. cymam nec superante hispidulis, *bracteis* lanceolatis raro 5 mm. excedentibus nec involucrantibus; *calycis* lobis angustis subsetaceis 4–5 mm. demum attingentibus, *bucca* alba pedicello 5 mm. v. magis longo (Pl. III, 1).

Colombia: Woods about Moro,' 3000–4000 ft., *Pearce*! Hb. Mus. Brit.

28. **S. subinvolucrata** Wernham.

Herba volubilis caule suffrutescente primo densiuscule tomentoso demum glabrescente; *foliis* ellipticis utrinque angustatis nec vix acuminatis subacutis 10–11 cm. × 4·5 cm., supra molliter hispidulo-pubescentibus subtus in venis densiuscule strigosis nec araneosis nec aliter indutis, *petiolo* brevissimo 7 mm., *stipulis* late ovatis 8–9 mm. × 7–8 mm. mox deflexis; *inflorescentia* laxarum inter compactissimas subcapitata hispidulo-tomentosa, pedunculo 2–3 cm. longo cymam 2–3-plo superante, *bracteis* 2–3 foliosis lanceolatis ad 17 mm. × 5·5 mm. subinvolucrantibus; *calycis* lobis lineari-lanceolatis v. linearibus nec 4 mm. excedentibus; *corolla* vix 7–8 mm. longa extus sparsiuscule strigosa alba (Pl. III, 2, 3).

Eastern Peru: near Tarapoto, *Spruce* 4370! Hb. Kew.

29. **S. humilis** S. Moore, in Trans. Linn. Soc. Ser. II. iv. 369 (1893).

Herba caulibus plurimis subfastigiatis a rhizomate brevi valido lignoso ascendentibus densissime villosulis foliosis 20–25 cm. longis; *foliis* late ellipticis ad subrotundis ad 6–8 cm. × 3·5 cm., brevissime petiolatis, hispido-hirsutis nec araneosis vix v. brevissime acuminatis, *stipulis* ovatis ca. 7–9 mm. × 5 mm. nec reflexis; *inflorescentia* pilosissima subsessili v. pedunculo brevissimo compacta demum laxescente, *bracteis* ovatis acutis acuminatis 5–6 mm. × 3 mm. vix involucrantibus; *calycis* lobis lanceolatis 3 mm. longis; *corollae* albae tubo extus nisi insuper

in parte brevi ampliato puberulo glabro, 6 mm. longo, lobis 5–7 extus puberulis acutis lanceolatis vix 2 mm. longis (Pl. XII).

Brasil: Matto Grosso, Santa Cruz, *Spencer Moore* 472! S. Anna da Chapada, *Malme* 2071! Minas Geraes, Quartel de Biribiry, *Glaziou* 19420a! Hbb. Mus. Brit., Kew., Berol., Holm., Mus. Paris.

Remarkable for the lowly erect habit (see Introduction) and the very dense shaggy covering of the stem, leaves, etc. The latter are relatively very broad and almost sessile. The true characters of the inflorescence are apt to be masked by the hairiness.

Var. **lanceolata** S. Moore, *loc. cit.*

Major, *foliis* elliptico-lanceolatis 6·5 cm. × 2·7 cm. ad 9 cm. × 3·2 cm., minus pilosis; *floribus* parum majoribus.

Brasil: Matto Grosso, Santa Cruz, *Spencer Moore* 794! Cuyaba, *Malme* 2684! Hbb. Mus. Brit., Kew., Berol., Holm.

30. **S. Moorei** Wernham.

Herba caulibus plurimis basi suffrutescentibus, e rhizomate brevi lignoso valido ascendentibus densissime villosulis desuper pubescentibus 1-pedalibus; *foliis* ellipticis ad obovato-oblongis 8 cm. × 3·5 cm. ad 11 cm. × 5·5 cm. subsessilibus utrinque plus minus patule sericeo-strigosis nec araneosis, *stipulis* ovatis breviter acuminatis acutis 8–9 mm. × 6–7 mm. nec deflexis; *inflorescentia* pauciflora subsessili compactiuscula demum laxescente, *bracteis* lanceolatis ovatisque ad ca. 6 mm. longis nec involucrantibus; *calycis* lobis lanceolatis ad 3–4 mm. longis; *corollae* insuper extus sparse strigillo-villosae tubo anguste infundibulari 6–7 mm. longo lobis lanceolatis ad 5 mm. longis (Pl. IV, 1–4).

Brasil: Matto Grosso, Santa Anna da Chapada, *Robert* 687! Hbb. Mus. Brit., Kew.

Appears like a stout form of *S. humilis*, which it resembles in habit, but is readily distinguished by the shape of the leaves and the shape and size of the corolla.

31. **S. colombiana** Wernham.

Frutex ramulis validiusculis junioribus strigosis vel strigillo-pubescentibus; *foliis* ovalibus ad ca. 10 cm. × 5·5 cm., utrinque angustatis, utrinque nisi subtus in venis densiuscule sparsissime strigosis v. glabratis, *petiolo* ad 1–1·5 cm., *stipulis* majusculis 7–10 mm. × 7–8 mm. mox reflexis ovatis obtusis; *inflorescentia* sparse strigosa laxiorum inter compactas nec multo laxescente subsessili v. pedunculo saepius vix ad 7–8 mm., raro ad 1·5 cm. longo, *bracteis* 2–3 manifestis ovato-lanceolatis longe acuminatis ad 7–8 mm. longis, primo basi connatis subinvolucrantibus; pedicellis ad 6–7 mm.; *calycis* lobis lineari-oblongis glabris ad

4·5 mm. longis, *corollae* albae extus sparsiuscule strigosae tubo infundibulari-cylindraceo 9 mm. longo lobis lanceolatis acutis 2·5 mm. longis (Pl. XII).

Colombia: *Triana* 681! *Smith* 1834 (in part)*! Ocaña, 3900 ft., *Schlim* 697! Cauca, 4000 ft., *Triana* 1752! Chiriqui lagoon, *Hart* 144! Venezuela: Carabobo, 4000 ft., *Funcke & Schlim* 624! 3000 ft., *Linden* 1498! Hbb. Mus. Brit., Kew., Cantab., Berol., Boiss., Brux., De Cand., Holm., Mus. Paris.

A somewhat difficult species, on account of the indifferent preservation and immature condition of much of the material. Linden's 1498 may be regarded as the type; and Triana 1752, as to be seen in the English herbaria, differs so much from Linden's specimen that I took it originally for a distinct species with inconspicuous bracts and short reflexed calyx-lobes. The Paris and Brussels specimens of Triana 1752, however, leave no doubt that this plant is to be referred to *S. colombiana*.

This species is nearly related to the Peruvian *S. umbellata*, but distinct in the characters of the inflorescence and calyx-lobes, and the smaller, less acuminate leaves with shorter petioles.

32. **S. umbellata** Pers. Syn. i. 203 (1805). *Schwenkfelda umbellata* Ruiz & Pavon, Fl. Per. & Chil. ii. 55, t. 200, a. (1789).

Frutex volubilis ramulis sparse strigosis nisi insuper scabridulis mox glabrescentibus; *foliis* ovalibus ca. 14 cm. × 6 cm. longiuscule acuminatis, *petiolo* 2–3 cm., utrinque nisi subtus in venis sparse strigosis glabratis, *stipulis* ovatis ad 16 mm. × 10 mm.; *inflorescentia* primo capitata involucrata demum valde laxescente, *bracteis* 2–3 manifestis ovatis v. lanceolatis 10 mm. × 5 mm. vix acuminatis, pedunculo ut ramuli strigoso ca. 1 cm. cymam nec superante; *calycis* lobis subsetaceis ad 5 mm. v. magis accrescentibus incurvatis; *corollae* inter minores tubo extus desuper glabro insuper strigoso (Pl. XII).

Peru: *Ruiz & Pavon*! *Poeppig* 43! 1226! *Matthews* 1951! *Richard*! Cochero, *Dombey* 561! *Cavanilles*! Hbb. Mus. Brit., Kew., Cantab., Berol., Boiss., De Cand., Deless., Mus. Matrit., Mus. Paris.

Essentially a Peruvian species; distinct in the inflorescence, which is a pedunculate involucrate head when young, but which becomes very lax and diffuse at the early fruiting stage; and also in the setaceous calyx-lobes.

33. **S. hirta** Sw. Prod. Veg. Ind. Occ. 46 (1788). *Schwenkfelda hirta* Sw. Fl. Ind. Occ. i. 450. *Schwenkfeldia hirta* Willd. Sp. Pl. i. 982.

Frutex altus ramulis subscandentibus sparse patente hirsutis; *foliis* ellipticis utrinque angustatis, *petiolo* ad 2 cm., utrinque

* See Sp. 65.

praesertim subtus in venis hirto-pilosis nec araneosis, *stipulis* majusculis rotundis ad 10 mm. × 14 mm.; *inflorescentia* demum laxescente umbellata, pedunculo ad 14 mm. longo, *bracteis* manifestis 2–3 ovatis 1 cm. longis subinvolucrantibus, pedicellis in fructu 6–9 mm.; *calycis* lobis saepius ovato-lanceolatis ad 7 mm. longis; *corollae* albae extus sparsissime pilosae tubo anguste infundibulari 1 cm. v. magis longo, lobis ovato-lanceolatis 4 mm. longis; *bacca* alba (Pl. XII).

Jamaica: *Macfadyen*! *Masson*! *Purdie*! *Swartz*! *Wright* 655! Fl. Jam., *Harris* 9246! 10278! 10561! *Wilson*! *Bertero* 2703! Hbb. Mus. Brit., Kew., Berol., Deless., Holm., Krug & Urban, Mus. Paris.

This species has been confused with *S. hirsuta;* but it seems to be quite distinct, not only in the characters of the inflorescence, but in the size and shape of the corolla, and the very ample calyx-lobes.

34. **S. novo-granatensis** K. Schum., in Mart. Fl. Bras. vi. pt. 6, 303 (1889). *S. cinerea* Karst. non Aubl. ex K. Schum. *loc. cit.*

Foliis lanceolatis ad ovalibus 12–13 cm. × 4–6·5 cm., supra sparsim aspero-strigillosis, subtus in venis pilosis, apice obtusissimo, basi acutis, *petiolo* ad 2 cm., *stipulis* ovalibus 7 mm. × 5 mm. ad 1 cm. × 1·2 cm.; *inflorescentia* laxiuscula, *bracteis* ovatis foliaceis modo *S. hirtae* subinvolucrantibus, pedunculo 2–2·5 cm. longo densissime flavo-hispido, pedicellis longiusculis; *calycis* lobis late lanceolatis ad 6 mm. × 2·5 mm. patente hirsutis; *ovario* densissime sericeo-piloso; *corollae* extus dense hirsutae tubo gracili 7 mm., lobis vix 2 mm. long.

Colombia: Guaduas, *Karsten*! Hb. Berol. Bogota, Susumino, 3250 ft., *Triana* 1755! in hb. Mus. Paris. Bogota, *Triana*! in hb. Cantab.

35. **S. mexicana** Wernham.

Suffrutex scandens ramulis appresse pilosis; *foliis* lanceolatis ad ellipticis utrinque angustatis, 8–12 cm. × 2·5–5 cm. longiuscule acuminatis acutis, utrinque sparsiuscule hirto-pilosis, venis subtus strigosis approximatis utrinque 15, *petiolo* ad ca. 1 cm., *stipulis* late ovatis 8 mm. × 10 mm. acuminatis acutis; *inflorescentia* inter laxiusculas necnon compacta strigosa subsessili, *bracteis* nec manifestis; *calycis* lobis patente pilosis linearibus saepe setaceo-acuminatis 6–10 mm. longis; *corollae* albae extus uniforme strigosae tubo 10–12 mm., lobis lanceolatis acutis 3 mm. longis (Pl. V, 1, 2).

Mexico: *Liebmann* 43! Oaxaca, 3000 ft. *Galeotti* 2662! 3000 ft. Hbb. Kew., Berol., Brux., Deless., Mus. Paris.

Interesting as the sole representative of the genus in Mexico.

36. **S. Dewildemaniana** Wernham.

Frutex 3–4-pedalis ramulis gracilibus novellis dense sericeo-strigosis tarde glabrescentibus, caule basi diffuse radicante, in siccitate nigricante; *foliis* ovato-lanceolatis ca. 10·5 cm. × 4·5 cm., longiuscule acuminatis acutis basi subrotundatis v. obtusis, *petiolo* ad 1 cm., supra sparsim hirtellis, subtus sparsim araneosis, *stipulis* ovatis acutis acuminatis ad 7·5 mm. × 5 mm. mox reflexis; *cymis* subumbellatis ca. 2·5 cm. diametro pauciforis laxiusculis, pedunculo 5 mm. longo, *bracteis* manifestis saepius 2 lanceolatis acuminatis acutis ca. 1 cm. × 4 mm., extus sparse pilosis intus glabris, *pedicellis* gracilibus ad 4 mm.; *calycis* lobis lanceolatis acutis ad 7 mm. × 1·5 mm. subglabris; *corollae* tubo extus sparse piloso 8·5 mm. longo, lobis apice barbatis latiusculis; *ovario* flavo-arachnoideo.

In the forest, in soil which is inundated during the rainy season, Lower Congo, *Cabra* 93! Hb. Brux.

A very distinct species, recalling the American *S. colombiana*. The critical features are the bracts, the long calyx-lobes, and the short corolla.

37. **S. Schumanniana** Büttner, in Verh. Bot. Ver. Brand. xxxi. 76 (1890).

Frutex ramulis appresse pilosis glabrescentibus; *foliis* ellipticis utrinque breviter attenuatis supra sparse scabrello-hirtis infra sparsissime nisi in venis dense sericeo-strigosis, petiolo demum ad ca. 1·5 cm. longo, *stipulis* late ovatis 7 mm. × 6 mm. reflexis; *inflorescentia* laxiorum inter compactas, pedunculo 2–3 mm. v. subsessili, bracteis paucis inconspicuis lanceolatis 3–4 mm. longis nec involucrantibus; *calycis* lobis lineari-lanceolatis ad 7–8 mm. longis; *corollae* albae extus sparsiuscule sericeo-strigosae tubo 18 mm., lobis lanceolatis 5 mm. longis (Pl. XII).

Congo: between Lukeola and Bolobo, *Büttner* 447! Hb. Berol. *Dewèvre* 145! 287! Eala, *Pynaert* 1268! Leopoldville, *Gillet* 2572! Hb. Brux. I refer two Gold Coast Plants—*Thompson* 46! and *Burton*! Hb. Kew.—with some hesitation to this species; they may be distinct, but the material is inadequate for certain identification. A plant from the Ivory Coast, Dabou, *Chevalier* 17232! is probably also referable to the same species.

The species is remarkable for the length—over 2 cm.—of the flowers.

38. **S. angolensis** Wernham.

Frutex volubilis caule 6–10-pedali juniore appresse pubescente v. strigilloso mox glabrescente; *foliis* ellipticis breviter acuminatis 7–8 cm. × 3–3·5 cm., *petiolo* saepius brevi nonnunquam ad 1 cm. longo, supra sparsissime patule hirtis infra nisi in venis densiuscule strigosis glabratis, *stipulis* ovato-lanceolatis 7–8 mm. × 3·5 mm.

mox reflexis deciduis ; *inflorescentia* laxiuscula subcapitata pedunculo vix 1 cm. necnon manifesto, pedicellis accrescentibus in fructu ad 4–5 mm., *bracteis* paucis ovalibus primo subinvolucrantibus ca. 5–8 mm. × 3–4 mm. ; *calycis* lobis lineari-oblongis fere ad 1 cm. accrescentibus deinde patulis ; *corollae* albae tubo extus glaberrimo tubulari 8–9 mm. nec insuper ampliato, lobis patentibus 3 mm. longis, extus dense sericeo-barbatis (Pl. XII).

Angola : Cazengo, *Gossweiler* 601 ! Golungo Alto, *Welwitsch* 4744 ! 4745 ! To 3000 ft. Hbb. Mus. Brit., Kew., Berol., De Cand., Mus. Paris.

39. **S. Vogelii** Benth., in Hook. Niger Fl. 398 (1849), including var. *villosior*.

Frutex scandens caule gracili sparsiuscule breviter villoso glabrescente ; *foliis* ellipticis 7–10 cm. × 3–5 cm., acuminatis basi saepius rotundatis, *petiolo* 5–10 mm., utrinque hirto-pilosis pilis saepius patentibus, venis secundariis paucis distantibus, *stipulis* oblongis ad rotundis ad 1 cm. × 7 mm., mox reflexis ; *inflorescentia* laxiorum inter compactas subsessili v. nonnunquam pedicello manifesto ad 3 cm. nonnunquam 5 cm. longo, *bracteis* paucis lanceolato-ovatis nonnunquam subinvolucrantibus ; *calycis* lobis linearibus 11–12 mm. demum superantibus ; *corollae* tubo 10–15 mm. longo extus glabrato, lobis suberectis 2 mm. longis extus nec conspicue barbatis.

Sierra Leone : *Don* ! *Vogel* 87 ! *Barter* ! *Scott Elliot* 3871 ! 4175 ! *Afzelius* ! *Dinklage* 2509 ! *Reade* (Hb. Kew.) ! French Guinea : *Farmar* 234 ! Kaloum, *Maclaud* 358 ! Diaguissa, high plateaux, *Chevalier* 12687 ! Hbb. Mus. Brit., Kew., Berol., De Cand., Deless., Mus. Paris.

S. Vogelii leads directly to Capitatæ (see p. 16, and Fig. 3), being nearly related to *S. tchapensis* and its allies.

Sectio ii. Sessiles Wernham.

Bracteis saepius inconspicuis nec involucrantibus, inflorescentia sessili saltem nec capitulo pedunculato involucrato, floribus dense fasciculatis sessilibus v. subsessilibus rarissime solitariis.

40. **S. speciosissima** K. Schum., in Engl. Bot. Jahrb. xxxiii. 338 (1903).

Frutex, *foliis* oblongis ca. 10 cm. × 4 cm., utrinque pilis inspersis, *stipulis* e basi late triangulari abrupte acuminatis et subulatis 1 cm. longis ; *floribus* solitariis subsessilibus ; *calycis* lobis lineari-subfiliformibus ca. 3 cm. longis ; *corollae* clavato-tubulosae tomentosae tubo ca. 8·5 cm., lobis subulatis ca. 1·5 cm. ; *antheris* 1·5 cm. longis (Pl. XII).

Cameroons : Kebo, 650 ft., *Conrau* 247 ! Hb. Berol.

Unique for the genus in the size of its flowers.

41. **S. speciosa** K. Schum., in Engl. Bot. Jahrb. xxiii. 429 (1896).

Frutex scandens ramulis dense patente rufo-hirsutis; *foliis* 10–15 cm. × 5–7 cm.; *floribus* in fasciculis sessilibus lateralibus densis dispositis, vel nonnunquam subsolitariis; *calycis* lobis longiuscule subulatis; *corolla* rufo-sericeo-hispida 3–4 cm. longa (Pl. XII).

Togo: *Büttner* 263! S. Nigeria: Oban, *Talbot* 1040! Cameroons: *Conrau* 218! Bipinde, *Zenker* 1816! Victoria, *Winkler* 27! Barombi, *Preuss* 150! 325! Abonando, *Rudatis* 57! 800 ft. Hbb. Mus. Brit., Kew., Berol., Boiss., Deless., Mus. Paris.

A striking species, on account of its large flowers, with long subulate calyx-segments, bristling, like the young branches, with reddish hairs.

42. **S. medusula** K. Schum., MS.

Herba repens caule radicante vix nisi basi lignoso, insuper pilis rufis patentibus dense induto; *foliis* ad ca. 10 cm. × 5·5 cm. plerumque obovatis nec acuminatis, valde inaequalibus, majoribus basi obliquis, subtus discoloribus lanugine albido minuto tamen denso indutis, *stipulis* integris; *inflorescentiis* dense fasciculatis sessilibus; *calycis* lobis subsetaceis, patente hirsutis ad 5 mm. longis; *corolla* 8–9 mm. longa (Pl. VI, 1–3).

Cameroons: Bipinde, *Zenker* 2095! 4414! Hbb. Mus. Brit., Kew., Berol., Deless., Holm., Mus. Paris.

40–50 cm. in length. Leaves hairy on both sides, silvery below. Stipules membranous, triangular or lanceolate, up to about 14 mm. × 4 mm. Remarkable for its lowly habit and its anisophylly.

43. **S. acuminata** Baker, in Journ. Linn. Soc. xxv. 320 (1890).

Suffrutex erectus 7-pedalis, ramulis dense hirsutis vix arachnoideis; *foliis* subcoriaceis lanceolatis ad ovatis longiuscule acuminatis, nonnunquam inaequalibus, majoribus ca. 12 cm. × 4 cm. minimis 5 cm. × 2 cm., basi obliquis, utrinque molliter hirsutis nec arachnoideis subtus discoloribus velutinis, *stipulis* in setis pluribus fimbriatis; *floribus* sessilibus fasciculatis; *calycis* lobis angustissimis subsetaceis ad ca. 8 mm. longis; *corolla* vix 1·5 cm. longa; *stylo* nonnunquam ad 6–7 mm. e flore exserto (Pl. VII, 1–3).

Madagascar: *Baron* 5736! 6238! *Petit-Thouars*! Norontsanga, *Hildebrandt* 3024! Nossi-Bé, *Boivin* 2064 (in part) *! *Richard* 211! I. Ste. Marie, *Boivin* 2064 (in part)! *Richard* 636! Hbb. Mus. Brit., Kew., Berol., Mus. Paris.

* See next species.

The inequality of the leaves is not so marked as in *S. diversifolia* from this *S. acuminata* is distinguished by its hirsute, not arachnoid, indumentum, and the numerous long stipular setae.

44. **S. angustifolia** Boivin MS.

Frutex subsarmentosus ramulis arachnoideis mox glabrescentibus vix nisi novellis pubescentibus; *foliis* lineari-oblongis ca. 11 cm. × 1·5 cm.; membranaceis, basi saepe rotundatis saepius nec conspicue acuminatis, acutis, supra asperulo-pubescentibus subtus in maturitate sparsiuscule arachnoideis, nec valde inaequalibus, *petiolo* ad 5 mm. longo, *stipulis* parvis ovatis setoso-fimbriatis; *floribus* subsessilibus in axillis fasciculatis; *calycis* lobis setaceis patente pilosis ad 1 cm. demum attingentibus; *corolla* anguste infundibulari, extus sericea, tota ca. 6·5 mm. longa, lobis lanceolatis 2·5 mm.

Madagascar: Nossi Bé, forest above Panandara, *Boivin* 2064 (in part)! Hbb. Boiss., Mus. Paris.

The nearest ally is *S. acuminata*, from which this differs in its long narrow leaves and corolla barely half the size.

45. **S. diversifolia** Pers. Syn. i. 203 (1805). Don, Gen. Syst. iii. 539. Drake del Castillo, Hist. Nat. Pl. Madag. vi. t. 448. *Schwenkfeldia diversifolia* Spreng. Syst. i. 765.

Frutex erectus ca. 7–8-pedalis ramulis arachnoideis; *foliis* superioribus plerumque valde inaequalibus inferioribus subaequalibus, majoribus ovato-lanceolatis acuminatis basi obliquis, supra primo arachnoideis demum glabris, subtus lanuginoso-velutinis discoloribus ad 15 cm. × 5·5 cm., minoribus ad ca. 2 cm. × 1 cm., *stipulis* late ovatis subpectinatim fimbriatis; *floribus* flavis in cymis arcte sessilibus fasciculatis; *calycis* lobis angustissimis subsetaceis ca. 8 mm. longis; *corollae* extus aureo-sericeae tubo 1–1·7 cm. longo, lobis ad 6 mm. × 2 mm.; *stylo* e corollae tubo ad 7 mm. exserto, *stigmate* conspicue 5-lobato (Pl. XII).

Mauritius? *Petit-Thouars*! (*v. infra*). Madagascar: *Baron*! *Bernard*! *Breon* 27! *Chapelier*! *Forbes*! *Gerrard* 24! *Humblot* 69! *Lastelle*! *Lyall*! *Petit-Thouars*! *Poivre*! *Thompson*! Janala Country, *Baron* 298! Forest of Didy, *Catat* 1722! Forest near Ankeramadinika, *Scott Elliot* 1772! Betanimena, *Hilsenberg*! I. Ste. Marie, *Boivin* 1767! *Bernier* 271! *Forbes*! *Richard* 34! Maroa, forests in the interior, bay of Antongil, *Mocquerys* 162! 264! Hbb. Mus. Brit., Kew., Cantab., Berol., Boiss., De Cand., Deless., Mus. Paris.

The locality given for the type by Persoon is Mauritius, and he records it as collected there by Petit-Thouars ("Dom. Aubert"). I can find, however, no specimen from Mauritius in any of the European herbaria which I have examined—all being from Madagascar; and Don's description and Drake's excellent figure leave little doubt

regarding the identity of the species. It would appear not unlikely, therefore, that the locality Mauritius was given by Persoon in error.

The species is at once recognisable by its erect habit, the cottony indumentum and light-coloured felt on the under-side of the rather broad leaves, and the great inequality of the latter. This makes them appear alternately arranged; but in Richard's plant cited above (n. 34 in Hb. Mus. Paris) the leaves at the lower nodes tend to equality; hence it may be that the anisophylly obtains only in the upper branches.

According to Bernier (n. 271, in Hb. Mus. Paris) the common name is *Voa Seira* (or *Seua ?* see next species), and a decoction of the leaves is useful in fever-cases.

46. **S. seua** Wernham. *Seua* (nom. vulg.) Flacourt, Hist. Gr. Isle de Madagascar, 137, 140 (1661).

Frutex ramulis arachnoideis; *foliis* valde inaequalibus majoribus ad 13 cm. × 4 cm., minoribus 1·5 cm. × 6 mm., supra nisi in vena centrali densiuscule sparsim hirto-pubescentibus, subtus dense flavo-lanuginosis valde discoloribus, *petiolo* brevissimo; *stipulis* membranaceis ovatis ca. 8 mm. × 7 mm., in laciniis 5–8 lanceolatis divisis, dorso et margine puberulis; *floribus* in fasciculis arcte sessilibus, *bracteis* lanceolatis subinvolucrantibus; *calycis* laciniis lanceolatis complanatis 4–5 mm. × 1·5 mm., intus subglabris extus dense flavo-arachnoideis.

Madagascar: *Flacourt* 98! 126! ex Hb. Vaillant, in Hb. Mus. Paris. Clearly related to *S. diversifolia* and *S. acuminata*, but at once distinguishable by the calyx-lobes. The latter, together with the anisophyllous character, may connect this species with the west African *S. Mildbraedii*.

The leaves are said to possess astringent properties, and to be useful for fomenting contusions, etc.

47. **S. cinerea** Aubl. Pl. Guian. 193, t. 75 (1775). *Schwenkfelda cinerea* Sw. Fl. Ind. Occ. i. 452, t. 10. *Schwenkfeldia cinerea* Sw. *loc. cit.*; Willd. Sp. Pl. i. 982.

Frutex scandens ramulis arachnoideis; *foliis* plerumque ellipticis ca. 11 cm. × 5·5 cm., supra primo arachnoideis demum glabris infra discoloribus lanugine dilute flavo dense induto; *inflorescentia* lanuginosa sessili, *floribus* arcte compactis, *bracteis* ovalibus ad ca. 9 mm. × 8 mm. conspicuis subinvolucrantibus; *calycis* lobis lanceolatis vel oblongis nec angustissimus ca. 7 mm. longis; *corollae* albae densiuscule extus patente hirsutae tubo 12–15 mm. longo, lobis lanceolatis ad 6 mm. longis; *bacca* rosea v. obscure purpurea ca. 8 mm. × 7 mm., a calycis tubo 4 mm. lobis 1 cm. longis persistente coronata (Pl. XII).

Guiana: *Aublet*! *Hb. Jussieu*! *Leblond*! *Patris*! *Martin* 82! French Guiana: *Leprieur* 101! 102! *Hb. Moricand*! *Perrottet*! *Poiteau*! Cayenne, *Jelski*! *Kunth*! *Leguillon*! *Martin* 95! *Perrottet*!

D. Richard ! *Rothery* 231 ! Karouany, *Sagot* 309 ! Koarou, *L. Richard* ! Porto Rico : *Ledru* 349 ! Hbb. Mus. Brit., Kew., Cantab., Berol., Boiss., Brux., De Cand., Deless., Holm., Mus. Paris.

This species has not been found south of Guiana, in contrast with the somewhat nearly-related *S. grisea*, a native of eastern Brasil, with which it has been confused. *S. cinerea* is at once distinguishable by the floccose-arachnoid indumentum, which is confined for the most part to the youngest branches in the rougher, villous, *S. grisea*. The leaves, moreover, soon become smooth and glabrous on the upper surface in the present species. A similar distinction separates *S. cana* from *S. brasiliensis*, and *S. diversifolia* from *S. acuminata*. A further and important distinction lies in the conspicuous and involucrate bracts of the present species ; the bracts are much smaller and less conspicuous in *S. grisea*.

48. **S. mollissima** Benth. MS.

Frutex scandens ramulis dense patente villosis, caule basi repente radicante ; *foliis* ad ca. 8 cm. × 3·5 cm., supra asperulo-pubescentibus subtus discoloribus argenteo-arachnoideo-lanuginosis ; *inflorescentiis* bracteatis sessilibus nec multifloris, *bracteis* exterioribus ovato-lanceolatis ad 14 mm. × 6·5 mm. ; *floribus* albis sessilibus confertis ; *calycis* lobis lanceolatis complanatis 5–8 mm. longis ; *corollae* tubo 1 cm. raro excedente, e calyce tandem parum exserto, extus densissime patente sericeo-villoso, lobis lanceolatis ad 4 mm. longis (Pl. XII).

Brasil : about Santarem, *Spruce* 320 ! 684 ! Hbb. Mus. Brit., Kew., Cantab., Berol., Boiss., De Cand., Mus. Paris.

The affinity is with *S. grisea*, but the present species is much more hairy and shaggy with spreading indumentum, the leaves smaller, and the corolla-tube shorter. The whole plant, too, is apparently much smaller.

49. **S. amazonensis** Wernham.

Frutex subrepens ad 4–5-ped. adscendens, *caule* primo densiuscule patente hirsuto demum glabrescente ; *foliis* ca. 12 cm. × 5 cm., supra sparsiuscule pilosis subtus discoloribus minute arachnoideo-lanuginosis venis saepius fuscis conspicuis ; *inflorescentiis* sessilibus villosis, *bracteis* ovatis subinvolucrantibus ; *floribus* confertis, *calycis* lobis lineari-lanceolatis 7–9 mm. longis ad 2 mm. latis ; *corolla* alba extus nisi tubi basin versus glabrata dense patente hirsuta, tubo 2 cm. nonnunquam excedente, e calyce 1 cm. exserto, lobis ovato-lanceolatis 4 mm. × 2·5 mm. (Pl. V, 3, 4).

Brasil : Amazonas province, *Koch* 92 ! about Manaos, *Ule* 5117 ! *Gwynne-Vaughan* 25 ! Rio Negro, *Trail* 389 ! Ega, *Poeppig*, 2514 ! Venezuela : Pacimo, *Spruce*, s. n. ! Hbb. Kew., Berol., Boiss., Deless. ; and a representative shoot of this species, with a fully-opened

flower, is mixed with *S. hirsuta* var. *Sellowii* under *Glaziou* 19435a ! in hb. Mus. Paris.

Distinct from its allies in the habit, compact subinvolucrate inflorescences, and the large, far exserted corolla.

50. **S. pannosa** Wernham.

Frutex scandens, *foliis* ad 14 cm. × 5 cm., ellipticis acuminatis, supra hispidulo-pubescentibus subtus arachnoideo-lanuginosis, *petiolo* 1·5–2 cm. longo, *stipulis* lanceolatis ad triangularibus ; *inflorescentiis* sessilibus paucifloris, floribus confertis sessilibus ; *calycis* lobis longe acuminatis lineari-oblongis ad 12–14 mm. accrescentibus ; *fructu* in diametro ca. 5 mm. rufo-brunneo-piloso a calycis persistentis lobis sinuatis nec rigidis coronato.

Brasil : Prov. Pernambuco, Caxanga, *Schenck* 4279 ! Hb. Berol.

Near *S. grisea*, but distinct in the shape of the calyx-lobes, which curl in the fruiting-stage, and in the long petioles ; the character of the indumentum on the underside of the leaves, too, differs in the two species.

51. **S. grisea** Cham. & Schlecht., in Linnæa iv. 192 (1829). *S. eriantha* DC. Prod. iv. 439. *Schwenkfeldia eriantha* Dietr. Syn. Pl. i. 793.

Frutex scandens, *foliis* plerumque ellipticis ca. 12 cm. × 5 cm., supra asperulo-pubescentibus subtus arachnoideo-lanuginosis discoloribus, venis nec fuscis nec conspicuis, *petiolo* brevissimo raro 1 cm. attingente, *stipulis* late ovatis ; *inflorescentiis* floribusque confertis sessilibus, *bracteis* nec conspicuis nec subinvolucrantibus ; *calycis* lobis lineari-oblongis 6–8 mm. accrescentibus rigidiusculis demum patentibus nec conspicue acuminatis ; *corollae* albae tubo ad 14 mm., lobis lanceolatis 4–5 mm. extus villosae (Pl. XII).

Brasil : without more precise locality, *Blanchet* 53 ! *Boog* ! *Burchell* 774 ! 1804 ! 2960 ! *Fra Custodio* 98 ! *Dupré* ! *Forrest* 38 ! *Glocker* 561 ! 591 ! *Pohl* 864 ! *Sello* 328 ! 768 ! 804 ! 959 ! 1076 ! *Vauthier* 98 ! Ceara, *Gardner* 1697 ! Pernambuco, *Ridley*, *Lea & Ramage* ! Alagoas, *Gardner* 1338 ! Bahia, damp hedges, *Blanchet* 85 ! 1175 ! 3124 ! & s. n. ! *Guillot* 3224 ! & s. n. ! *Lhotsky* 558 ! *Hb. Martius* ! *Nadeaud* ! *Salzmann* 7 ! & s. n. ! Feira S. Anna, *Blanchet* ! Is. Itaparica, *Casaretto* 2245 ! Jacobina, Mordiba, *Blanchet* ! Minas Geraes, *S. Hilaire* 59 ! Rio de Janeiro, *Bowie & Cunningham* ! *Burchell* 2672 ! *Doellinger* ! *Freyreiss* ! *Frohich* ! *Gaudichaud* 630 ! *Gay* ! *Glaziou* 714 ! *S. Hilaire* 182 ! *Macrae* ! *Hb. Martius* ! *Raddi* ! *Regnell* 92 ! *Schenck* 1697 ! 3776 ! *Vauthier* 41 ! *Weddel* 295 ! *Widgren* 119 ! 1047 ! Corcovado, *Gardner* 5486 ! *Glaziou* 8740 (in part)* ! *Guillemin* 129 ! *Miers* 3154 ! *Saldanha* 439 ! *Schwacke* 4755 ! *Ule* 3803 ! Mandiocca, *Riedel* 623 ! Paraguay : *Fleischer* ! ex hb. Steudel (Paris). Hbb. Mus. Brit., Cantab., Kew., Berol., Boiss., Brux., De Cand., Deless., Mus. Paris.

* See Sp. 54.

A hedge and thicket scrambler. All the localities named except Paraguay lie in the extreme east and near the coast, from Rio de Janeiro in the south to Ceara in the north. The localities for *S. cinerea* (q. v.), on the other hand, all lie in Guiana (with the exception of one record from Porto Rico), on the other side of the Amazon; and *S. grisea* must undoubtedly be maintained as a distinct species. This and *S. hirsuta* are the only two species found outside the tropics.

52. **S. Burchellii** Wernham.

Frutex scandens ramulis appresse sericeo-pilosis; *foliis* ellipticis ca. 9 cm. × 3·3 cm., utrinque angustatis, supra asperulo-pubescentibus subtus praesertim in venis pilis nonnunquam longiusculis appressis indutis, nec tamen araneoso-lanuginosis, *petiolo* saepius brevi ad 1 cm. longo, *stipulis* ovatis acutis mox reflexis ad ca. 9 mm. × 6 mm.; *floribus* in capitulis ca. 1·5 cm. × 1·5 cm. paucifloris nonnunquam ad 2 v. 1-florem reductis sessilibus confertis, *bracteis* paucis conspicuis, ellipticis vel oblongis ad 1·2 cm. × 6 mm., extus in vena mediana et margine pilosis, subinvolucrantibus basi nonnunquam connatis; *calycis* lobis linearibus vel lanceolatis 7–11 mm. longis margine pilosis tubo brevissimo; *corollae* tubo ca. 1 2 cm. longo extus dense et uniforme griseo-sericeo, lobis lanceolatis 3·5 mm. longis acuminatis acutissimis; *ovario* dense et longe albido-sericeo (Pl. XII).

Brasil: between S. Toao and S. Aña, prov. Pará, *Burchell* 9271! Hbb. Kew., Brux., Mus. Paris.

A well-defined species, the nearest ally being *S. amazonensis;* from this it is readily distinguished by the indumentum of the leaves and the size and other characters of the corolla.

53. **S. velutina** Benth., in Hook. Journ. Bot. iii. 219 (1841). *S. aspera* Aubl. *β. velutina* K. Schum. in Mart. Fl. Bras. VI. vi. 307. *S. velutina* Benth. var. *oblongifolia* Miq. in Linnæa xviii. 615 (1845).

Frutex scandens partibus novellis saepius rufis; *foliis* ca. 12 cm. × 6 cm., supra asperulo-pubescentibus subtus lanugine molli nonnunquam decidua indutis; *floribus* candidis in fasciculis axillaribus pilosis nec arachnoideis dense confertis sessilibus; *calycis* lobis inter breviores linearibus nec setaceis nec multo accrescentibus; *corollae* extus dense et uniforme patente pilosae tubo ca. 1 cm. longo; *bacca* ellipsoidea sparsiuscule hirsuta ad 12 mm. × 10 mm. a calycis limbo persistente lobis vix 3 mm. coronato (Pl. XII).

Guiana: *Appun* 328! *Hostmann* 40! *Jenman* 1775! *Miquel*! *Schomburgk* 25! Demerara, *Hancock* 282! Japacooma, *Jenman* 1724!

Maroni, *Mellinon* 186! Massaroonie, *Appun* 359! Roraima, *Schomburgk* 901! 1333! Trinidad: *Fendler* 425! 5 miles from Erin, *Broadway* 2226! Brasil: Pará, *Wullschlaegel* 253! Hbb. Mus. Brit., Kew., Berol., Brux., De Cand., Deless., Holm., Krug & Urban, Mus. Paris.

The reddish tinge in the youngest parts and the petioles is characteristic. The Trinidad specimens reveal the deciduous character of the felt on the under-surface of the leaves.

54. **S. Lindmaniana** Wernham.

Frutex forsan erectus; *foliis* supra asperulo-pubescentibus infra lanugino-velutinis discoloribus ca. 7 cm. × 3·5 cm.; *floribus* in cymulis alaribus puberulis paucifloris sessilibus confertis; *calycis* lobis latiuscule lanceolatis inter breviores nec multo accrescentibus 5 mm. vix attingentibus; *corollae* extus pilis ascendentibus sparsiuscule hirsutae tubo 7 mm. nec excedente (Pl. XII).

Brasil: *Glaziou* 8740 (in part)! Hb. Holm. Porto d'Estrella, *Warming*! Hb. Mus. Paris.

Near *S. camporum*, but distinct especially in the larger size of the calyx-lobes and the corolla. The habit is unfortunately doubtful. Two species are apparently included under the same number 8740 in Glaziou's collection—the one just described, and *S. grisea* (*q. v.*), with long calyx-lobes and corolla-tube.

55. **S. camporum** Sprague, in Trans. & Proc. Bot. Soc. Edin. xxii. 434 (1904).

Herba suffruticosa erecta 1–2-pedalis ramulis junioribus dense fulvo-villosis nec arachnoideis; *foliis* ca. 6 cm. × 2·5 cm. supra asperulo-pubescentibus subtus discoloribus albidis minute arachnoideo-lanuginosis; *floribus* in cymis hirsutis nec lanuginosis dense confertis sessilibus plurimus; *calycis* lobis primo vix 3 mm. nec valde accrescentibus lanceolatis; *corolla* inter minimas tubo 3–4 mm. lobis 2 mm. (Pl. IV, 5–9).

Colombia: Cabuyaro, Rio Meta, in the campos, *Sprague* 43! Hbb. Mus. Brit., Kew.

One of the few small erect forms among the small-leaved species.

56. **S. glomerata** Wernham.

Frutex ramulis novellis dense flavo-tomentosis deinde glabrescentibus; *foliis* late lanceolatis v. elliptico-oblongis 10–12 cm. × 4·5–5 cm. basi saepius rotundatis breviter acuminatis supra sparsim asperulo-puberulis infra dense flavo-lanuginosis, *petiolo* ad ca. 1·3 cm., *stipulis* late ovatis membranaceis glabris breviter acuminatis acutis ad 1·4 cm. × 1·2 cm.; *floribus* in fasciculis

globularibus nisi corollis fere glabris multifloris axillaribus sessilibus dense confertis; *calycis* lobis oblongis subglabris ad 3 mm. × 1 mm.; *corolla* tota vix 7 mm. excedente extus uniforme dense sericea.

Colombia: Pilcuan, Barbacoas, 2925 ft., *Triana* 1756! Hb. Paris.

Differs from *S. camporum*, its nearest ally, in its habit, which is apparently scandent, and its glabrous, spherical bunches of flowers.

57. S. brasiliensis Wernham.

Frutex erectus 3–4-pedalis ramulis arachnoideis; *foliis* aequalibus ca. 7 cm. × 4 cm. ellipticis vix acuminatis basi acutis nec obliquis subsessilibus supra asperulo-pubescentibus subtus discoloribus dense albido-arachnoideo-lanuginosis; *inflorescentia* dense conferta multiflora sessili; *calycis* extus cano-lanuginosi lobis brevibus triangularibus latiusculis nec acuminatis; *corolla* candida brevi extus dense incano-lanata lobis ovato-lanceolatis patentibus (Pl. XII).

Brasil: *Claussen* 560! 568! 609! *Pohl* 148! 957! *Richard*! Pernambuco, *Gardner* 2886! Bahia, *Blanchet*! Minas Geraes, *Claussen* 271! 673! & s. n.! *S. Hilaire* 283! 2281! *Regnell* 1016! *Schenck* 3379! *Weddell* 2563! Goyaz, *Burchell* 5136! 6532! 7035! 8061! 8383! *Gardner* 3225! Caraça, in campo, *Glaziou* 14912! Lagoa Santa, *Warming* 105! Andayatuba and Ytú, in campos, *Riedel* 2065! Faria, *Glaziou*! Bordo do Campo, dry campos, *Riedel*, 116! Bolivia: Apolo, *Williams*, 173! 303! Mapiri, *Rusby*, 1905! Hbb. Mus. Brit., Kew., Cantab., Berol., Brux., De Cand., Deless., Holm., Mus. Paris.

This species is distinct in several characters, tabulated below, from the Peruvian *S. cana* (q. v.), with which it has been confused. The latter is a scrambler like *S. grisea*, while *S. brasiliensis* is a short erect shrub growing, like *S. camporum*, in the campos. The present species is figured in Mart. Fl. Brasil., VI. vi. t. 134, under the name *S. cana*.

S. cana Hook.	*S. brasiliensis* Wernham.
Native of Colombia and Northern Peru.	Native of Bolivia and southern and eastern Brasil.
Twining shrub.	Short erect shrub.
Leaves arachnoid, otherwise glabrous, above, and smooth.	Leaves more or less densely hairy and hispidulous above, never arachnoid.
Leaves rounded at the base, often with a short acute portion decurrent into the manifest petiole.	Leaves gradually narrowed to the base, subsessile.

S. cana Hook.	*S. brasiliensis* Wernham.
Petioles longer than the inflorescence, sometimes over 2 cm. long.	Petioles not exceeding the inflorescence.
Stamens inserted half-way down the corolla-tube.	Stamens inserted in the mouth of the corolla-tube.
Ovary and stigma 4-merous.	Ovary and stigma 5-merous.

58. **S. cana** Hook. Ic. Pl. t. 247 (1840). *S. flavida* Krause, in Engl. Bot. Jahrb. xl. 323.

Frutex scandens ramulis arachnoideis ; *foliis* late ovatis ad 13 cm. × 7 cm. vix acuminatis, supra laevibus glabris vel arachnoideis subtus discoloribus dense et minutiuscule cinereo-arachnoideo-lanuginosis, basi rotundatis v. subito et breviter in petiolum nonnunquam ad 2 cm. longum decurrentibus acuminato-angustatis, *stipulis* late ovatis obtusiusculis breviter acuminatis 8 mm. × 8 mm. ; *floribus* in fasciculis cano-lanuginosis dense confertis sessilibus, *bracteis* late ovatis obtusis imbricatis sæpe subinvolucrantibus ; *calycis* lobis latis brevibus triangularibus ; *corollae* extus cano-lanuginosae tubo 4–5 mm. lobis 2–3 mm. ; *ovario* tetramero (Pl. XII).

Peru : Chicoplaya, etc., *Ruiz & Pavon* ! Moyobamba, *Matthews* ! *Weberbauer* 4568 ! Cerro de Campaña, *Spruce* s. n. ! Colombia : between Yolombo and Cancan, 4000–6000 ft. *Lehmann* 4004 ! Hbb. Mus. Brit., Kew., Berol., Boiss.

This seems to be essentially a native of western tropical South America, and I can find no specimen collected in Brasil. The essential points of difference from the Brasilian *S. brasiliensis* have been indicated under that species. Dr. Krause, following K. Schumann in the Flora Brasiliensis (*supra*), has treated *S. brasiliensis* as *S. cana* and the latter species as new, naming it *S. flavida*.

59. **S. guianensis** Wernham.

Frutex scandens ramulis arachnoideo-pilosis ; *foliis* 8–9 cm. × 3·5 cm. ovatis acutis subaequalibus, petiolo brevissimo, supra dense hispidulo-tomentosis infra discoloribus arachnoideo-lanuginosis ; *inflorescentiis* in axillis stricte confertis sessilibus multifloris lanuginosis bracteatis ; *calycis* lobis lanceolatis complanatis in flore ca. 3 mm. mox ad 7–8 mm. accrescentibus setaceo-acuminatis ; *corolla* extus cano-villosae dilute roseae tubo 6 mm. lobis ca. 2 mm. (Pl. XII).

British Guiana : Mt. Canaupang, *Schomburgk* s. n. ! Hb. Kew.

A twiner, with pink flowers.

60. **S. Mildbraedii** Wernham.

Suffrutex repens caule radicante, insuper dense et patente rufo-piloso partibus junioribus saepe purpureis; *foliis* quemque ad nodum valde inaequalibus, majoribus ad ca. 12 cm. × 6·5 cm. ellipticis basi obliquis petiolatis acutis, supra asperis demum scabrello-pubescentibus subtus discoloribus arachnoideo-lanuginosis, minoribus ca. 9 mm. × 6 mm. late ovatis acutis breviter acuminatis deciduis, *stipulis* membranaceis ovalibus setaceo-pectinatis, toto ca. 1 cm. × 5 mm.; *floribus* albis in fasciculis axillaribus extus lanuginosis dense confertis sessilibus; *calycis* lobis planis lanceolatis vix 3 mm. longis, apicem versus saepius purpureo-barbatis; *corolla* tota vix 4 mm. longa.

Congo: Kimuenza, 1300–1625 ft., *Mildbraed* 3664! Hb. Berol. *Gillet* 775! Sanda, *Vanderyst*! Environs of Lemfu, *Butaye*! Between Demlo and the Koango, *Butaye* 1487! Hb. Brux.

Distinctive in the purple, dense hairs of the youngest parts, the anisophylly, the stipules, and the low, creeping habit. The last three specimens named above exhibit the progressive tendency to the following variety:—

Var. **glabrescens** Wernham.

Ramulis arachnoideis, pilis quoque dilute-flavis adpressis indutis; *foliis* novellis ipsis supra nisi in vena centrali hirtellis glabris.

Congo: Kisantu, *Gillet* 3520! Hb. Brux.

61. **S. dubia** Wernham.

Frutex v. suffrutex caule dense pilis rufis patentibus induto; *foliis* membranaceis, supra et margine densiuscule hirsutis subtus praesertim in venis pariter indutis lanugine etiam denso minuto griseis, inaequalibus majoribus obovatis ad 15 cm. × 8·5 cm., brevissime acuminatis basi rotundatis obliquis, *petiolo* dense piloso 2–3 cm. longo, minoribus late ovatis ad suborbicularibus acutis breviter v. vix acuminatis, *petiolo* nec e caulis pilis apparente, *stipulis* oblongis extus sericeo-pilosis intus glabris ca. ad medium in laciniis 6–7 apice setaceis pectinatim divisis, setis ad 2·5 cm. v. longioribus × 6–7 mm. basi latis.

Congo: Madibi, *Sapin*! Hb. Brux.

I have no hesitation in referring this plant to *Sabicea;* but as no flowers are available, its exact position must remain in some doubt for the present. In its vegetative organs it approaches *S. Mildbraedii;* from this it is distinguishable by its much coarser habit, larger and thinner leaves, of characteristic shape, with less strongly-marked anisophylly, and long petioles.

62. **S. Batesii** Wernham.

Frutex sarmentosus caule laevi arachnoideo; *foliis* verisimiliter ab abortu alternantibus, ellipticis sæpe oblongis basi valde

obliquis 20 cm. × 9 cm. in maturitate excedentibus, *petiolo* 3 cm. longo, supra nisi in vena centrali hirtella glabris subtus araneoso-lanuginosis, *stipulis* lanceolatis ad 12–14 mm. × 8–10 mm. integris; *floribus* in fasciculis extus cano-lanuginosis dense confertis sessilibus; *calycis* lobis ovatis obtusis 2–3 mm. longis (Pl. VII, 4–7).

Cameroons: Bipinde, Lolodorf, *Zenker* 4070! Gaboon: bank of stream, Mfoa, 85 mi. E. of Gaboon, *Bates* 536! Hbb. Mus. Brit., Kew., Berol., Brux., De Cand., Deless., Mus. Paris.

A "trailing shrub or vine" with flowers and inflorescences much like those of *S. brasiliensis*; distinctive in the large size and pseudo-alternate arrangement of the leaves.

63. **S. arborea** K. Schum., in Engl. Bot. Jahrb. xxviii. 58 (1899).

Arbor ramulis arachnoideis; *foliis* lanceolatis attenuato-acuminatis ca. 8 cm. × 3 cm. basi acutis, supra arachnoideis mox glabratis subtus lanuginoso-tomentosis incano-discoloribus; *floribus* pluribus in fasciculus lanuginosis sessilibus dense confertis; *calycis* dentibus brevibus vix 2 mm. lanceolatis; *corollae* tubo ca. 5 mm. extus subtomentoso lobis lanceolatis acuminatis 5 mm.; ovario biloculari.

Zanzibar coast; Uluguru, 5000–6000 ft., *Stuhlmann* 8775! Hb. Berol.

Peculiar in its tree-habit and bilocular ovary. The dried specimens have the typical appearance of a *Sabicea*, recalling *S. diversifolia*, from the neighbouring island of Madagascar, with which it may have some affinity.

64. **S. glabrescens** Benth., in Kew Journ. Bot. iii. 219 (1841). *S. aspera* Aubl. γ. *glabrescens* K. Schum. in Mart. Fl. Bras. VI. vi. 307.

Frutex scandens ramulis appresse rufo-hirsutis demum glabratis; *foliis* ovatis v. ellipticis acuminatis ad 7–10 cm. × 3–4 cm., supra scabrello-pubescentibus vel glabrescentibus infra nisi in venis appresse strigosis sparsissime hirsutis ad glabratis, *stipulis* late ovatis v. rotundatis saepius mox reflexis; *floribus* in fasciculis alaribus sessilibus confertis; *calycis* lobis ovatis 2 mm. longis nec valde accrescentibus; *corollae* candidae extus uniforme pilis longis canis patentibus dense indutae tubo 1 cm. v. longiore lobis lanceolatis 4–5 mm. (Pl. XII).

Guiana: R. Quitaro, *Schomburgk* 538! Demerara, *Parker*! Lama Creek, *Jenman* 3698! Hooroobea, *Jenman* 4711! Upper R. Casiquiari, *Spruce* 3275! Campo de Janauari, *Spruce* 1281! Trinidad: Hb. *Krug & Urban* 1074! Brasil: Pará, *Schwacke* 3452! Hbb. Mus. Brit., Kew., Cantab., Berol., Boiss., Brux., De Cand., Deless., Mus. Paris.

Resembles *S. aspera*, but is readily distinguished by the broad stipules and calyx-lobes. A specimen in the Kew herbarium, collected

by Jenman (no. 987) on the Essequibo R., may belong here; but it is described on the label as "shrub or small tree." The leaves are rather larger and relatively broader than in the typical *S. glabrescens*, but the corolla is exactly similar. The material is unfortunately inadequate for treatment as a new species, as may be the case.

65. **S. hirsuta** H. B. & K. Nov. Gen. & Sp. iii. 417 (1818). *Schwenkfeldia hirsuta* Spreng. Syst. i. 765 (1825). *S. villosa* Willd. ex Roem. & Schult. Syst. v. 265 (1819). *Paiva verticillata* Vell. Fl. Flum. 104 (1825); iii. t. 16 (1827).

Frutex scandens; *foliis* elliptico-oblongis acuminatis utrinque plus minus praecipue subtus in venis hirsutis nec tamen lanuginosis, ca. 6–10 cm. × 2·5–4·5 cm., *stipulis* late ovatis vel subrotundis reflexis; *floribus* albis inter minimis in fasciculis alaribus sessilibus confertis; *calycis* laciniis lineari-lanceolatis planis inter breviores raro ad 4 mm. accrescentibus; *corollae* tubo extus infra glabrato insuper sparsiuscule strigoso vix 6 mm. longo, lobis anguste triangularibus suberectis minutis; *bacca* violacea, ad 1 cm. diametro (Pl. XII).

Guatemala: *Türckheim* (J. D. Smith 7749)! Nicaragua: *Tate* 212! Chontales, *Seemann* 128! Costa Rica: *Tonduz* 9186! 13363! *Pittier* 1208! 10297! Porto Rico: *Bertero*! *Balbis*! Hb. *Kunth*! *Eggers* 1065! *Gundlach* 1474! *Riedlé*! *Richard*! *Sintenis* 263! 1819! *Stahl* 376! *Wilson* 232! Colombia: *Smith* 1834 (in part)! * banks of the Orinoco, *Humboldt*! *Humboldt & Bonpland*! *Goudot*! Trinidad: *Broadway* 3337! *Lockhart* 350! *Hb. bot. gard. Trin.* 1793! *Sieber* 327! Guiana: *Poiteau*! *Leprieur*! Demerara, *Martin* 246! *Moricand* 179 (in part)! La Mana, *Sagot* 880! Cayenne, *Jelski*! *Poiteau*! Ecuador: Valle Mindo, *Sodiro*! Peru: *Ruiz & Pavon*! *Rivero* 379! Lima, *Ruiz & Pavon* 379! Tarapoto, *Spruce* 4837! Tatanara, *Lechler* 2510! Tillao, *Ruiz*! Maynas alto, *Poeppig* 1821! Brasil: *Burchell* 3155! 3475! *Widgren* 535! São Paulo, *Lindberg* 718! *Mosen* 3416! Lagoa Santa, *Warming*! Rio de Janeiro, *Widgren*! Santa Catharina, *Ule*, 182! Blumenau, *Müller*, 128! Morretes, *Dusén*, 4469! Hbb. Mus. Brit., Kew., Cantab., Berol., Boiss., Brux., De Cand., Deless., Holm., Krug & Urban, Matrit., Mus. Paris.

Beside those quoted above the two following typical specimens are preserved in the Botanic Gardens herbarium at Madrid. Both are from Tropical America, but the precise locality does not appear.

Cavanilles 260! giving, as a common name, *po-ri*. *Rodriguez*!

The habitat of the specimen described and figured by Vellozo as *Paiva verticillata* is given as "campis maritimis, praesertim Parochia Campo grande habitat. Mensibus calidis floret." I have not seen it.

Var. *α*. **adpressa** Wernham.

Ramulis foliisque appresse sericeo-pilosis, bacca rubra.

Costa Rica: Limon, *Kuntze* 1995! Punta Arena, *Tonduz* 6712! 9955! Panama: *Hayes*! *Seemann* 1073! Chagres, *Fendler* 180!

* See species 31.

Portobello, *Billberg*! Trinidad, *Broadway* 3338! St. Thomas Is., *Friedrichstal*! Brasil: Jurua R., *Ule* 5118! Maynas, Yurimaguas, in fruticetis, *Poeppig*! Hbb. Mus. Brit., Kew., Berol., Boiss., Deless., Holm., Krug & Urban, Mus. Paris.

Var. *β*. **Sellowii** Wernham.

Ramulis sparsim patente pilosis, *foliorum* venis subtus appresse sericeis; *calycis* lobis ad 4 mm. accrescentibus latiusculis marginibus saepe revolutis; *corolla* minima.

Brasil: Rio de Janeiro, *Gaudichaud* 622! et s. n.! *S. Hilaire* 980! Minas Geraes: Tombador, near Diamantina, *Glaziou* 19435a* (in part)! Bahia: *Sello* 223! 299! 381! 732! 1072! Illheos: *Blanchet* 3004! Hbb. Mus. Brit., Kew., Berol., De Cand., Deless., Mus. Paris.

The distribution is the widest of any species (see p. 5). The two varieties, it will be observed, are confined to the western and eastern areas respectively.

This species is somewhat variable, notably in the extent of the hairy covering; in a few cases, again, the calyx-lobes are somewhat accrescent and conspicuously acuminate after flowering—e.g. Sagot's plant from La Mana. The constant features are especially the corolla—among the smallest in the genus—and the shape of the stipules; both these serve to distinguish *S. hirsuta* readily from *S. aspera*, with which it has been confused.

66. **S. aspera** Aubl. Pl. Guian. i. 194 t. 76 (1775). *Schwenkfeldia aspera* Willd. Spec. Pl. i. 982. Nom. Vulg. (Galibi, Guiana) *Sabi-Sabi*.

Frutex scandens ramulis appresse strigoso-hirsutis; *foliis* lanceolatis v. anguste ovalibus utrinque angustatis, supra asperis breviter hirto-pubescentibus subtus in venis distantibus strigosis aliter sparsissime pilosis vel glabratis nec arachnoideo-lanuginosis, ad 10 cm. × 3·5 cm., *stipulis* lanceolatis acuminatis nec reflexis; *floribus* albis in fasciculis alaribus nonnunquam demum laxescentibus sessilibus confertis; *calycis* lobis planis linearibus acutis ad 3 mm. longis; *corollae* extus patente pilosae tubo gracili ca. 1 cm. longo lobis lanceolatis ca. 3 mm. longis (Pl. XII).

Guiana: *Aublet*! *Patris*! *Perrottet*! *Poiteau*! *Richard*! *Hb. Moricand*! Brasil: Florista de Tijuca, *Glaziou*! Pará, *Burchell* 9989! 10038! 9346! 9429! *Baker* 73! Hbb. Mus. Brit., Kew., Berol., Boiss., Brux., Deless., Holm., Mus. Paris.

The secondary veins are noticeably distant—7–8 pairs at most; and the shape of the stipules is quite unusual for the genus. This species is "transitional" in respect of the inflorescence (see Introduction); examples showing the tendency to laxity are those collected by Glaziou and by Baker in Brasil. The following broad-leaved variety also exhibits the same feature.

* See Sp. 49.

Var. **latifolia** Wernham.

Rufus, *foliis* late ovalibus vix v. parum acuminatis ca. 9–12 cm. × 5–6 cm., *petiolo* ad ca. 1 cm.; *inflorescentia* laxiuscula.

Guiana: Cayenne, *Martin* 63! Hbb. Mus. Brit., Kew.

67. **S. parva** Wernham.

Suffrutex humiliusculus caule repente radicante, ramis ca. 20–30 cm. altis erectis gracilibus insuper appresse strigosis; *foliis* inter minores 4–6 cm. × 1·5–2·5 cm., utrinque acutis lanceolatis v. ovalibus, utrinque sparsissime nisi subtus in venis dense strigoso-hirsutis scabrello-pubescentibus, *stipulis* angustis oblongo-lanceolatis; *floribus* pauciusculis in axillis confertis sessilibus; *calycis* lobis planis lanceolatis acutis vix 1 mm. longis; *corollae* extus uniforme patente villoso tubo 12–13 mm. longo lobis oblongis 2–3 mm. longis (Pl. VI, 4–6).

Brasil: near Caburí, Rio Negro, *Trail* 391! Hb. Kew.

Remarkable for the habit, and shape of the stipules: the affinity is clearly with *S. aspera*.

68. **S. flagenioides** Wernham.

Frutex ramulis divaricatis apicem versus tomento patente minutiusculo indutis; *foliis* inter minores lanceolatis acuminatis ca. 5 cm. × 1·5 cm., supra nitentibus nisi in vena media sparsissime ut infra sparsiuscule puberulis glabris venis secundariis perpaucis valde obscuris, *stipulis* subulato-setaceis 2–3 mm. longis; *floribus* paucis in axillis confertis subsessilibus; *calycis* lobis planis lanceolatis vel anguste triangularibus subacutis, fructu ad 4·5 mm. attingentibus.

Yucatan: Chichankanab, *Gaumer* 1432! in Field Columbian Museum. Hb. Berol.

69. **S. parviflora** K. Schum. MS.

Frutex scandens ramulis gracilibus rufo-puberulis divaricatis; *foliis* inter minores ovatis ad ca. 3 cm. × 1·5 cm., venis obscuris utrinque perpaucis (3–4) basi plerumque rotundatis petiolatis, utrinque nisi subtus in venis sparse strigillosis glabratis, *stipulis* a basi lato vaginante in setam longiusculam productis; *floribus* minimis in axillis confertis sessilibus, *inflorescentia* demum laxescente diametro 1 cm. excedente; *calycis* lobis ad 2·6 mm. linearibus; *bacca* glabra ad 6 mm. diam., a calycis limbo lobis ad 3·5 mm. coronata; *seminibus* angularibus minutissimis tuberculatis.

Congo: Sembo, *Allard* 343! Kisantu, *Gillet* 148! Hb. Brux. Angola: *Welwitsch* 3165! Hb. Berol.

Resembles the previous species from Yucatan; the chief distinction

lies in the much smaller cymes and flowers in the present species, and also the rounded leaf-base. The inflorescence becoming lax after maturity of the flowers is significant.

Sectio iii. Capitatæ Wernham.

Inflorescentia capitata compacta, *bracteis* involucrantibus, pedunculo manifesto.

70. S. brevipes Wernham.

Frutex 5–6 pedalis subscandens caule juniore appresse sericeo-piloso desuper subtomentoso; *foliis* ovalibus acuminatis basi rotundatis v. subcordatis ad 11–12 cm. × 5 cm., *petiolo* brevissimo nonnunquam ad 1–1·5 cm., supra hispidulo-pubescentibus, subtus in venis dense aliter sparsissime sericeo-strigosis nec araneoso-lanatis, *stipulis* pro rata majusculis ovato-lanceolatis 15 mm. × 7 mm., saepius reflexis; *floribus* albis in capitulo 2–2·5 cm. diam. compacto sessilibus, dense confertis, pedunculo raro ca. 8 mm. excedente, *bracteis* ovalibus acutis acuminatis 15 mm. × 8–9 mm. involucrantibus; *calycis* limbi lobis tubum subaequantibus 6–7 mm. longis ad 1 cm. v. longioribus accrescentibus, lineari-lanceolatis acuminatis acutis rigidiusculis sparse pilosis; *corollae* extus sericeae parum e calyce exsertae tubo ca. 15 mm. longo, lobis ovatis vix 3 mm. longis; *bacca* rubra subsessili a calycis limbi lobis saepe caudato-acuminatis persistentibus coronata.

Togo: *Baumann* 256! *Kersting* 146! *Büttner* 73! 749! Bukila, *E. & M. Laurent*! Hbb. Berol., Brux.

A near ally of *S. Vogelii* in § Laxæ.

71. S. Gilletii De Wild., in Ann. Mus. Congo v. i. 78 (1903).

Frutex scandens ramulis dense pilis patulis rufis 2–3 mm. longis indutis; *foliis* ellipticis 6–13 cm. × 2–4·5 cm., basi cuneatis, acuminatis acutis, supra sparse subtus praesertim in venis densius pubescentibus nec araneosis, *petiolo* ad 1–3 cm. elongato, *stipulis* ovatis acutis reflexis ad 14 mm. × 5–6 mm.; *floribus* in capitulis confertis, pedunculo 1–1·8 cm. dense villoso, *bracteis* involucrantibus villosis 15 mm. × 10 mm. ovatis acutis; *calycis* limbo fere ad basin in laciniis lineari-lanceolatis acutis 10 mm. × 1 mm. diviso.

Congo: Kimuenza, *Gillet* 1911! 2024! Ifuta and Lomkola, *E. & M. Laurent*! Sanda and Kimpako, *Vanderyst*! Bombaie, *Claessens* 173! Kasai, Demla, in the plain, *Sapin*! Hb. Brux.

72. S. tchapensis Krause, in Engl. Bot. Jahrb. xlviii. 408 (1912).

Frutex scandens ramulis patule pilosis; *foliis* ellipticis ca. 10–12 cm. × 4–5 cm. breviter acuminatis, basi angustatis,

supra scabrello-pilosis subtus nisi in venis saepius patule pilosis glabratis, *petiolo* nonnunquam ad 3·5 cm. elongato, *stipulis* ovato-lanceolatis acutis ca. 1 cm. × 5 mm.; *floribus* albis in capitulo compacto 2·5 cm. diam. sessilibus confertis, pedunculo 6–8 mm., *bracteis* late ovatis acuminatis ca. 1·5 cm. × 2 cm. involucrantibus; *calycis* limbi tubo lobos oblongo-lanceolatos 8 mm. longos vix subaequante; *corollae* e calyce parum exsertae tubo ca. 15 mm. longo, extus nisi infra lobos triangulares acutos erectos 2 mm. longos pariter sericeo glabrato.

Cameroons: Tchape Pass, *Ledermann* 2655! Lome, *Mildbraed* 5422! Bipinde, *Zenker* 2968! Hb. Berol.

Var. **glabrescens** Wernham.

Minus hirsutus pilis appressis, foliorum venis subtus sericeis.

West Africa: *Pogge* 1041! 1162! 1196! Cameroons: Jaunde, *Zenker* 204! Batanga, *Bates* 770! Hbb. Mus. Brit., Kew., Berol.

The most noticeable feature in this and the two preceding species is the rather large capitulum, with deep, broad, almost orbicular, involucral bracts and very short, rather stout peduncle. The chief point of distinction lies in the shape and dimensions of the involucral bracts.

73. **S. Schaeferi** Wernham.

Frutex ramulis sparse strigosis; *foliis* ellipticis utrinque angustatis ad ca. 12 cm. × 5 cm., venis secundariis utrinque ca. 15–18, utrinque sparsissime nisi in venis strigillosis hirto-pubescentibus v. glabratis nec araneosis, *petiolo* ad 2 cm., *stipulis* 7 mm. × 5 mm. ovatis reflexis; *floribus* roseis in capitulo compacto ca. 2 cm. diam., pedunculo strigilloso ca. 4 cm. dispositis, *bracteis* ovati-lanceolatis vix 1 cm. × 5 mm. involucrantibus; *calycis* limbo fere ad basin in laciniis lineari-oblongis 8 mm. longis acutis ciliatis diviso; *ovario* extus sparse strigoso-hirsuto.

Cameroons: Bare, 5800–6500 ft., *Schaefer* 76! Hb. Berol.

74. **S. ingrata** K. Schum., in Bolet. Soc. Brot. x. 126 (1892).

Frutex ramulis novellis subtomentosis demum glabrescentibus; *foliis* ellipticis utrinque breviter acuminatis ca. 11–14 cm. × 5·5–6 cm., supra sparse pilosis subtus discoloribus minute araneoso-tomentosis, *petiolo* ad 2·5 cm., *stipulis* late ovatis vix 1 cm. × 7 mm.; *floribus* in capitulo compacto ca. 2 cm. diam. dispositis, *bracteis* ovalibus v. rotundis ca. 1 cm. × 8 mm. involucrantibus, pedunculo sparsiuscule piloso nec araneoso-lanato 1–1·5 cm. recto rigidiusculo; *calycis* lobis lineari-lanceolatis ad 3–4 mm; *corollae* anguste infundibularis extus pilosae tubo 14 mm. laciniis 3 mm. longis.

St. Thomas Island: *Quintas* 18! Hb. Berol.

75. **S. gracilis** Wernham.

Frutex scandens ramulis teneris novellis subtomentosis demum glabrescentibus ; *foliis* ellipticis ad subrotundis 6–7 cm. × 3–4 cm. breviter acuminatis acuto apice basi acutis, supra, nisi in vena centrali hirtis, pilis paucis conspersis, subtus minute araneoso-lanatis discoloribus, venis saepius conspicuis margine et vena centrali rufo-ciliatis, *petiolo* ad 3–4 cm. ; *floribus* subsessilibus in capitulis compactis ca. 1·5 cm. diam. confertis, *bracteis* involucrantibus suborbicularibus, pedunculo gracili curvato glabrato 3 cm. v. longiore ; *calycis* lobis lineari-oblongis ad 5–6 mm. acutis ; *corollae* tubo extus glabro 8–9 mm., lobis ca. 1·5 mm. patentibus ; *bacca* subsessili nec saltem conspicue pedicellata (Pl. VIII, 1–4).

Cameroons : Batanga, *Bates* 398 ! Hbb. Mus. Brit., De Cand.

The collector makes the note : " Twining vine. Long- and short-styled flowers on different plants."

76. **S. ferruginea** Benth., in Hook. Niger Fl. 397 (1849). *Cephaëlis ferruginea* Don, Gen. Syst. iii. 605 (1834).

Frutex scandens ramulis appresse dense rufo-sericeo-pilosis ; *foliis* ellipticis v. oblongis breviter acuminatis 10 cm. × 4·5 cm.–15 cm. × 7·5 cm. basi saepius rotundatis, supra nisi in vena centrali rufo-strigosis glabris, juventute rufo-hirsutis subtus densissime ferrugineis araneoso-lanuginosis, *petiolo* appresse piloso saepius brevi 1 cm. raro longiore, *stipulis* majusculis 12 mm. × 10 mm. ovato-triangularibus acutis extus 3–6-hirsuto-costatis ; *floribus* permultis albis in capitulo compacto 3–4 cm. diam. arcte confertis, pedunculo 5–9 cm. longo dense sericeo-strigoso, *bracteis* plurimis imbricatis exterioribus late ovatis ad 1·8 cm. × 1·6 cm. longiuscule acuminatis acutis, extus scabrello-pubescentibus margine ciliato ; *calycis* lobis elongatis subfiliformibus demum 1 cm. excedentibus necnon sinuatis, pilis patulis longiusculis villosis ; *corollae* tubo anguste cylindraceo nec insuper ampliato, extus glabrato ca. 13 mm. longo, lobis lanceolatis erectis extus strigillosis vix 2 mm. longis ; *fructus* pedicellis ad 5 mm. v. longioribus accrescentibus (Pl. XII).

Sierra Leone : *Don* ! *Purdie* ! Bagroo River, *Mann* 862 ! Liberia, *Dinklage* 2540 ! 2563 ! Hbb. Mus. Brit., Kew., Berol., Mus. Paris.

Var. **lasiocalyx** Wernham. *Sabicea lasiocalyx* Stapf, in Journ. Linn. Soc. xxxvii. 106 (1905).

Pilis saepius patentibus, *inflorescentia* villosiore albo-tomentosa.

Liberia : Sinoe Basin, Monrovia, Kakatown, *Whyte* ! Hb. Kew.

77. **S. geophiloides** Wernham, in Cat. Talb. Niger. Pl. 41 (1913).

Herba repens hirsuta caule prostrato radicante ; *foliis* parvis ovatis v. ellipticis 3–3·5 cm. × 1·5–1·8 cm. apice acuto vix

acuminatis basi acutis, utrinque hirsutis nec subtus araneosis, *petiolo* 5–10 mm., *stipulis* breviter oblongo-rotundatis 3·5 mm. × 3 mm. mox reflexis; *floribus* in capitulo vix 2 cm. diam. confertis, pedunculo gracili sparse piloso 2 cm. v. longiore, *bracteis* late ovatis extus pilis paucis conspersis margine ciliato 1·3 cm. × 8 mm.; *calycis* limbo ad dimidium v. altius in lobis lanceolato-oblongis 8–9 mm. longis margine piloso diviso; *corollae* pro rata latiuscule infundibularis extus glabrae tubo 1·2 cm., lobis oblongis subacutis 3·5 mm. longis, ore 5 mm. lato; *bacca* hirsutissima sessili 7 mm. longa a calyce persistente coronata (Pl. XII).

S. Nigeria: Oban, *Talbot* 255! Cameroons: Abonando, *Rudatis* 44! Hbb. Mus. Brit., Kew., Berol.

Notable for its habit; its nearest ally is *S. pilosa*, which is a much larger plant, with larger leaves, inflorescences, and flowers.

78. **S. pilosa** Hiern, in Fl. Trop. Afr. iii. 76 (1877).

Frutex repens et scandens 10-pedalis caulibus radicantibus novellis patule pilosis; *foliis* utrinque sparsiuscule et longiuscule hirsutis nec araneosis v. lanatis, inferioribus majusculis saepius obovato-lanceolatis 15–17 cm. × 5–6 cm., basi cuneatis apice breviter et subito acuminatis acutissimis, *petiolo* elongato ad 4–5 cm. patule piloso, superioribus minoribus saepe ellipticis, acumine longo nonnunquam angusto 2–3 cm., petiolis multo brevioribus, *stipulis* ovatis acuminatis acutis 1 cm. × 6 mm.; *floribus* roseis in capitulis paucifloris confertis ad 3–4 cm. diam., capitulis nonnunquam compositis, pedunculo 1 cm. raro excedente, *bracteis* membranaceis ovatis acuminatis acutissimis involucrantibus ad ca. 1·7 cm. × 8 mm., extus pilis paucis conspersis margine ciliato; *calycis* limbo infra medium in lobis pilosis latiusculis oblongis vel lanceolatis flore 1 cm. × 3 mm. demum ad 2 cm. × 4 mm. accrescentibus diviso; *corollae* extus strigosae anguste infundibularis tubo 2·5–3 cm. lobis triangularibus acutis suberectis vix 2·5 mm. longis (Pl. XII).

Cameroons: Barombi, *Preuss* 15! 278! Batanga, *Dinklage* 548! Bipinde, *Zenker* 2053! Kribi, *Ledermann* 864! *Mildbraed* 6201! Corisco Bay: *Mann* 1866! Gaboon: Munda, *Soyaux* 220! Libreville, *Jolly* 79! Benito, *Guizal*! Hbb. Mus. Brit., Kew., Berol., Boiss., Brux., Deless., Holm., Mus. Paris.

Jolly describes this as a "très grande liane fleurissant sur les parties qui touchent la terre."

79. **S. Trailii** Wernham.

Suffrutex scandens ramulis novellis patule pilosis demum glabrescentibus; *foliis* ellipticis inter parva vix ad 5 cm. × 2 cm. sessilibus basi angustatis breviter acuminatis, utrinque hirsutis nec araneosis nec lanatis; *floribus* albis in capitulis paucifloris ca. 1 cm. diam. sessilibus, pedunculo brevissimo raro 3–4 mm.

excedente, *bracteis* 2–3 ovatis ca. 1 cm. × 5 mm. basi connatis involucrantibus; *calycis* limbi infundibularis tubo ca. 7 mm. longo lobis lanceolatis ciliatis flore ca. 3 mm. demum ad 5–6 mm. accrescentibus; *corollae* tubo gracili extus patule villoso 10–12 mm. longo infra lobos lanceolatos extus barbatos 3 mm. longos ampliato (Pl. XII).

R. Amazon: Obydos, *Trail* 390! Hb. Kew. and s. n.! ex hb. Glaziou in Hb. Mus. Paris.

This and the two following species are interesting as being the only American representatives of the section Capitatae (see Introduction, and Fig. 3).

80. **S. mattogrossensis** Wernham.

Frutex scandens ramulis sparsiuscule strigosis deinde pubescentibus glabrescentibus; *foliis* ellipticis utrinque angustatis ca. 9 cm. × 3·5 cm., supra asperulo-pubescentibus subtus praesertim in venis strigosis nec araneosis v. lanatis, *petiolo* ad 1 cm. tenero, *stipulis* parvis ovatis ad 7 mm. × 7 mm. reflexis; *floribus* albis in capitulo confertis paucifloro ca. 2 cm. diam., pedunculo vix 1 cm. dense strigoso, *bracteis* ovatis ca. 12 mm. × 6 mm. imbricatis involucrantibus; *calycis* limbo fere ad basin in lobis foliosis ovatis ad 9 mm. × 5 mm. extus sparsissime pilosis diviso; *corolla* parum e calyce exserta, tubo ad 1·5 cm. desuper glabrato insuper sparse strigoso, lobis lineari-oblongis 4–5 mm. longis; *ovario* strigoso (Pl. VIII, 5–8).

Matto Grosso: Santa Cruz, *Spencer Moore* 785! Hbb. Mus. Brit., Kew., Berol.

81. **S. Trianae** Wernham.

Frutex scandens ramulis arachnoideo-lanatis demum glabris; *foliis* ellipticis utrinque angustatis 8–9 cm. × 3·5–4 cm., supra nisi in vena centrali sparse strigosis glabris, novellis sparse arachnoideis nec aliter hirsutis, subtus densius pariter indutis, *petiolo* araneoso-lanato 5 mm. longo, *stipulis* parvis ca. 6 mm. × 4 mm. deflexis; *floribus* in capitulis paucifloris ca. 1·5 cm. diam. confertis, *bracteis* paucis involucrantibus, pedunculo brevi ad 3–4 mm. araneoso-lanato; *calycis* lobis ovalibus acutis ad 9 mm. × 4 mm.; *ovario* lanuginoso.

Colombia: *Triana* 717! Hb. Mus. Brit.

Nearly allied to the preceding Brasilian species, which it resembles in the inflorescence and calyx-lobes, but readily distinguishable by the light-coloured felt on the branchlets, the under side of the leaves, peduncles, and ovary, as well as by the glabrous or scantily cottony upper leaf-surface. The inflorescence tends to become lax after maturity; the peduncle is shorter, the petioles shorter and stouter, than in *S. mattogrossensis*.

82. **S. rufa** Wernham.

Frutex scandens parvus ramulis patule purpureo-pilosis demum glabrescentibus; *foliis* ellipticis basi angustatis breviter acuminatis 8–10 cm. × 4–5 cm., supra sparsiuscule hirtis subtus lanugine araneoso minuto deciduo indutis, margine ciliato venis utrinque ad 18 conspicuis patule villosis, *petiolo* rufo-villoso ad 1·7 cm. longo, *stipulis* late ovatis v. subrotundis ca. 5 mm. × 7 mm. mox reflexis; *floribus* albis in capitulis parvis compactis 4–6-floris confertis diametro vix 1·5 cm., *bracteis* ovatis extus villosis ca. 1 cm. × 1 cm. involucrantibus, pedunculo pilis purpureis deflexis induto 1·5–2·5 cm. longo; *calycis* limbo obsoleto; *corollae* tubo infra medium leniter angustato insuper ampliore, extus glabrato 8–9 mm. longo, lobis extus sericeis lineari-lanceolatis vix 1·5 mm. longis; *ovario* extus densissime cano-sericeo; *bacca* globosa dense villosa 8 mm. diam (Pl. XII).

Cameroons: Bipinde, *Zenker* 1818! Ebolowa, *Mildbraed* 5619! Batanga, *Dinklage* 1063! 1153! 1211! 1363! Gaboon: *Soyaux* 16! Hbb. Mus. Brit., Kew., Berol., Boiss., Deless., Mus. Paris.

83. **S. calycina** Benth., in Hook. Niger Fl. 399 (1849). Nom. vulg. (Gaboon): *Phaoloi* (Jolly).

Suffrutex scandens ad 15-pedalis ramulis sericeis rarissime sparse patente pilosis mox glabrescentibus; *foliis* plerumque ellipticis v. oblongis brevissime acuminatis basi saepius cordatis 8 cm. × 4 cm. ad 15 cm. × 8 cm., utrinque nisi in venis praecipue subtus strigosis fere glabris, *petiolo* strigoso-pubescente ad 3–4 cm. longo, *stipulis* ovatis acutissimis vix 1 cm. × 6–7 mm.; *floribus* albis v. flavido-albis in capitulis longepedunculatis confertis multifloris, pedunculo gracillimo ca. 8 cm. nonnunquam ad 12 cm. vel longiore laevi glabro, *bracteis* albidis insuper saepius viridiusculis basi purpureo-maculatis, involucrantibus paucis exterioribus late ovatis v. suborbicularibus saepe cordatis basi connatis, extus glabratis 15–17 mm. × 15–17 mm. vel majoribus; *calycis* limbo fere ad basin in lobis foliosis ovatis v. oblongis majoribus ca. 8 mm. × 3 mm. ad 1·5 cm. × 5 mm. accrescentibus diviso; *corollae* extus saepius glaberrimae tubo ca. 1·5 cm., lobis parvis 1·5 mm. longis late triangularibus; *fructus* pedicellis ad 5–6 mm. v. longioribus accrescentibus (Pl. XII).

Ivory Coast: *Chevalier* 17722! Gold Coast: *Farmar* 379! *Brown* 404! Abdulke, *Krause*! Ashanti, *Cummins* 148! Togo-land, *Baumann* 163! Lagos: *Dodd* 420! *Rowland* 55! *Moloney* 25! Nigeria: Benin, *Palisot de Beauvois*! Eppah, *Barter* 3282! Between Gogo and Anton, *Elliott* 77! Iro, *Foster* 185! Oji River, etc., *Kitson*! Oban, *Talbot* 114a! Eket, along the rivers, *Talbot* s. n.! Old Calabar, *Robb*! Fernando Po: *Mann* 53! *Barter*! *Vogel* 35! *Buchholz*! Skoropion, Cross River, *Holland* 31! 137! Cameroons: *Zenker & Staudt* 303! *Zenker* 1140! 2997! 3877! 4568! *Nachtigall*! *Tessmann* 883!

Braun 2! *Preuss* 70! 159! 1151! 1334! *Ledermann* 1014! 6066 *Büsgen* 239! *Mildbraed* 5573! *Rudatis* 21! *Dinklage* 707! *Bates* 70! 224! *Johnston*! *Winkler* 39! Gaboon: Libreville, *Klaine* 2684! 2808! 2847! 2918! *Jolly* 29! Congo: *Mildbraed* 2787! 2983! *Pynaert* 241! Ketabi, *Lecomte* E 110! & s. n.! Benito, *Guizal*! Kaquinga, *E. & M. Laurent*! Dima, *Lescrauwaet* 364! Malo, *Bruneel*! Hbb. Mus. Brit., Kew., Berol., Boiss., Brux., Deless., Mus. Paris.

A very distinct species, with its long glabrous peduncles and heads of flowers with large foliaceous calyx-lobes. The pedicels often elongate in the fruiting stage, and the involucral bracts become reflexed—an obvious device for seed-dispersal. Zenker & Staudt's no. 303, with dense spreading hairs on the branchlets, giving an almost woolly appearance, may be a distinct variety. The flowers may apparently be white, yellowish-white, or even violet-coloured (Lecomte).

Var. **hirsutiflora** Wernham.

Planta floribus extus plus minus sparse strigillosis; *corollae* lobis angustioribus.

Togo: *Von Doering* 237! Lagos: *Millen* 63! 163! *Rowland*! *MacGregor* 35! *Punch* 63! Yoruba: *Millson*! Between Ibadau and Abeokuta, *Schlechter* 13024! Hbb. Mus. Brit., Kew., Berol., Brux., De Cand., Deless., Mus. Paris.

84. **S. Barteri** Wernham.

Suffrutex repens 1–2-pedalis caule subtus radicante novello sparse patule piloso; *foliis* parvis ad 6 cm. × 2·5 cm. ellipticis basi sapius rotundatis v. cordatis supra scabrello-hirtis v. glabratis subtus praesertim in venis strigosis nec araneosis, *petiolo* ad 1 cm., *stipulis* ovatis 4–5 mm. × 4–5 mm. mox reflexis; *floribus* roseis in capitulis 2–3 cm. diam. paucifloris dispositis, pedunculo glabro 3–4 cm., *bracteis* 3–4 late ovatis ca. 12 mm. × 9 mm. glabris saepe rotundatis involucrantibus; *calycis* limbo in laciniis late lanceolatis ad 11 mm. × 3 mm. glabris acutis fere ad basin diviso; *corollae* extus glaberrimae tubo anguste infundibulari ca. 1 cm. longo, lobis brevibus late ovatis; *ovario* glaberrimo; *fructus* pedicellis ad 6 mm. (Pl. XI, 5–7).

Nigeria: *Barter* 1248! Old Calabar, *Holland* 118! Hb. Kew.

The only species with any manifest resemblance to the preceding one. It is altogether a smaller plant, being a lowly undershrub.

85. **S. composita** Wernham.

Frutex scandens parva ramulis appressissime strigosis; *foliis* ovalibus ad ca. 9 cm. × 5 cm. basi rotundatis acutis vix acuminatis, supra sparse asperulo-hirtis subtus lanugine araneoso dilute brunneo indutis, venis secundariis conspicuis, *petiolo* ad 2 cm., *stipulis* oblongo-ovalibus fere ad 1 cm. × 7 mm. acutis nec reflexis; *floribus* albis in capitulo ad 1·7 diam. compacto multi-

floro confertis, *bracteis* saepius 4 decussatis oblongis infra connatis involucrum tubo 1 cm. alto lobis 1 cm. × 8 mm. obtusis formantibus extus lanatis, pedunculo dense strigoso ad 3·5 cm.; *calycis* lobis lanceolatis acutis 5 mm. longis; *corollae* extus dense sericeae tubo 9 mm. lobis angustis acutis vix 1·5 mm. longis.

Cameroons: Mbo, 3900 ft., *Ledermann* 1515! Hb. Berol.

86. **S. brunnea** Wernham.

Frutex scandens ramulis dense patule rufo-pilosis; *foliis* ellipticis ad ca. 11–12 cm. × 5·5–6 cm. utrinque acutis, supra asperulo-pilosis subtus lanugine araneoso indutis discoloribus, *petiolo* vix ad 1·5 cm., *stipulis* ovatis 5–7 mm. × 4–6 mm. nec reflexis; *floribus* albis in capitulo 8–10 mm. diam. compacto paucifloro confertis, *bracteis* 2 exterioribus ovato-oblongis obtusis connatis, involucrum oblongum cujus tubo 5 mm. lobis 5–8 mm. toto 1 cm. altitudine excedente formantibus, pedunculo 1·5–2·5 cm. dense rufo-hirsuto; *calycis* lobis subulato-lanceolatis 2–3 mm.; *corollae* extus insuper sericeae infra glabrae tubo angusto 7–8 mm. lobis lanceolatis brevissimis; *ovario* extus densissime sericeo-strigoso; *bacca* alba succo sanguineo (Pl. XII).

S. Nigeria: Okuni and Ekom, *Holland* 262! Cameroons: *Rudatis* 71! *Winkler* 1027! Hbb. Mus. Brit., Kew., Berol.

87. **S. capitellata** Benth., in Hook. Niger. Fl. 398 (1849). *S. trichochlamys* K. Schum., in Engl. Bot. Jahrb. xxxiii. 338.

Frutex sarmentosus ramulis strigosis in siccitate rufescens; *foliis* ovalibus 10–15 cm. × 4·5–8·5 cm., supra scabrello-pubescentibus subtus araneoso-lanuginosis incanis, venis secundariis utrinque 12–15, *petiolo* elongato nonnunquam longissimo, *stipulis* rotundatis reflexis ca. 5 mm. × 8 mm.; *floribus* albidis in capitulis 6–10-floris ca. 1 cm. diam. compactis confertis, pedunculo obsoleto raro fere ad 1 cm. attingente densissime strigoso-sericeo, *bracteis* involucrantibus saepius 4 decussatis late ovatis acuminatis acutis ca. 6 mm. × 4 mm. extus lanatis basi connatis; *calycis* lobis linearibus ad 3–4 mm.; *corolla* extus superne sparse sericea, tubo ad 1 cm. insuper infundibulari ore 3–4 mm. lato, lobis ovatis patentibus 2–3 mm. longis; *fructus* albidi pedicellis nec conspicuis (Pl. XII).

Fernando Po: *Mann* 41! *Vogel* 88! *Mildbraed* 6851! Cameroons: *Bates* 78! 78a! *Buchholz*! *Büsgen* 484! *Dinklage* 561! 788! 1062! 1362! *Ledermann* 714! *Mann* 2198! *Zenker* 1141! Gaboon: Libreville, *Klaine* 766! 812! 1532! 2869! Congo: Basin of R. Nsele, *Butaye* 1459! Hbb. Mus. Brit., Kew., Berol., Boiss., Brux., Mus. Paris.

The type is *Mann* 41. The specimen in the Paris herbarium

has leaves exceeding 15 cm. × 8·5 cm.—broadly elliptic oblong—with petiole over 11 cm. long. The flowers are said to be violet in Klaine's Gaboon plants.

Var. **insularis** Wernham.

Planta minus hirsuta, nec ramulis nec inflorescentia arachnoideis ; *foliis* supra fere glabris ; *calycis* lobis 4·5 mm. fructu ad 5 mm. lineari-oblongis accrescentibus ; *corolla* minore, tubo 6 mm. lobis 1·5 mm. longis.

St. Thomas Is.: *Chevalier* 14622! Hb. Mus. Paris.

88. **S. Talbotii** Wernham, in Cat. Talb. Niger. Pl. 43 (1913).

Frutex sarmentosus ramulis strigosis; *foliis* ellipticis 8–9 cm. × 3·5–4 cm. supra scabrellis subtus sparsissime nisi in venis densiuscule strigosis nec araneosis nec lanatis, *petiolo* ad. 1 cm., *stipulis* inter minores ; *floribus* in capitulis compactis confertis ca. 1 cm. diam., pedunculo brevissimo, *bracteis* paucis ovalibus involucrantibus basi connatis ; *calycis* limbo in laciniis linearibus diviso vix 3 mm. longis, *corolla* extus insuper strigosa ca. 1 cm. longa lobis brevibus angustis, *ovario* densissime cano-sericeo-hirsuto (Pl. XII).

S. Nigeria: Oban, *Talbot* 2032! Hb. Mus. Brit.

Very near the preceding species, but easily separated by the absence of felt on the leaves; also the involucral bracts are bearded on the inside in this species, not glabrous as in *S. capitellata ;* and the heads tend to be aggregated at the ends of the shoots in *S. Talbotii.*

89. **S. fulva** Wernham.

Frutex parva scandens ramulis dense fulvo-tomentosis ; *foliis* ellipticis ad 9–10 cm. × 5–5·5 cm., supra sparse scabrello-hirtis subtus in venis dense fulvo-sericeo-strigosis aliter sparse puberulis nec araneosis, *petiolo* ad 1–2 cm., *stipulis* parvis ovatis ca. 4–5 mm. basi 5 mm. latis ; *floribus* albis in capitulis compactis confertis diam. vix 1 cm., pedunculo obsoleto v. brevissimo, *bracteis* paucis involucrantibus extus densissime fulvo-sericeis imbricatis, exterioribus 2 altitudinis usque ad 3 mm. connatis ; *calycis* limbo in laciniis lanceolatis acutis 4 mm. longis ca. ad medium diviso ; *corollae* anguste infundibularis tubo extus infra glabro insuper dense sericeo-strigoso 7 mm., lobis erectis lanceolato-oblongis 3·5 mm. longis extus densissime sericeis.

Cameroons: Lomi, *Mildbraed* 5424! Hb. Berol.

Differs from the preceding species especially in the shape of the corolla.

90. **S. Johnstonii** K. Schum. MS.

Frutex ramulis plus minus appresse rufo-pilosis ; *foliis* ellipticis ca. 8·5 cm. × 4 cm. breviter acuminatis acutis basi saepius

angustatis, supra in venis praesertim in centrali strigillosis v. puberulis aliter nisi in juventute hirtellis glabratis, subtus in venis strigosis conspicuis, secundariis utrinque 15–18, aliter lanugine araneoso candido minuto indutis discoloribus, *petiolo* ad ca. 8 mm., *stipulis* late ovalibus 4–5 mm. × 5–6 mm. reflexis; *floribus* in capitulis compactis 2–3 cm. diam. multifloris confertis, pedunculo arachnoideo vel dense appresse rufo-piloso 5–6 cm., *bracteis* paucis ovatis acuminatis ca. 1 cm. × 6 mm. involucrantibus, extus saepe araneoso-lanatis intus glabris demum reflexis, pedicellis 2–3 mm. gracilibus fructu ad 5–7 mm. v. longiore elongatis; *calycis* limbo infra medium in laciniis lanceolatis acutis flore ad 4 mm. fructu ad 7 mm. diviso; *corollae* extus glabrae tubo insuper infundibulari 7 mm. longo ore 2–3 mm. lato, lobis latis vix 2 mm. longis deflexis; *baccis* glabrescentibus ad 5 mm. diam. in capitulis globosis ad 3 cm. diam. dispositis, pedicellis sæpius conspicuis (Pl. XII).

Nigeria: Cross River Expedition, *Johnston*! Old Calabar, *Holland* 95! Eket, along the rivers, *Talbot*! Hbb. Mus. Brit., Kew., Berol.

91. **S. pedicellata** Wernham, in Cat. Talb. Niger. Pl. 42 (1913).

Frutex scandens ramulis arachnoideis canis demum glabrescentibus; *foliis* ovato-ellipticis longiuscule acuminatis obtusiusculis, 8–10 cm. × 3·5–5 cm., supra in vena ipsa centrali glaberrimis juventute sparse arachnoideis nec aliter pilosis subtus dense arachnoideo-lanatis discoloribus, venis secundariis utrinque ca. 12, *petiolo* ad 1 cm., *stipulis* a basi 3–4 mm. lato 4–5 mm. longis demum reflexis; *floribus* in capitulis ca. 1·5 diam. confertis multifloris, pedunculo 1·5–3 cm. araneoso, *bracteis* involucrantibus paucis ovatis v. suborbicularibus nec acuminatis vix imbricatis subuniseriatis, 5·5 mm. × 5 mm., extus araneosis intus glabris fuscis demum reflexis; *calycis* lobis brevissimis oblongis mox valde deflexis 2 mm. × 1 mm.; *corolla* a basi leniter ampliata extus nisi loborum deltoideorum brevium basin versus puberula glabra, ad 8 mm. longa, ore 2·5 mm. lata; *ovario* subgloboso extus arachnoideo; *fructus* pedicellis gracillimis ad 7 mm. longis (Pl. XII, showing fruit, *a*, and flower, *b*).

South Nigeria: Oban, *Talbot* 1367! 2033!

Very distinct in its uniseriate, early reflexed involucre, and the very short, relatively broad calyx-lobes, which are tooth-like in the flower, soon becoming strongly deflexed and adpressed to the ovary-wall. Apart from the whitish felt the plant is practically glabrous.

92. **S. lanuginosa** Wernham.

Frutex scandens ramulis incano-arachnoideis demum glabrescentibus; *foliis* ovalibus vix acuminatis obtusis ad 12 cm. × 6 cm.,

supra ipsa in vena centrali glaberrimis, juventute sparse arachnoideis subtus dense arachnoideo-lanatis pallide discoloribus, venis secundariis utrinque 10–14, *petiolo* 1·5–2·5 cm,, *stipulis* late oblongo-ovatis ca. 4 mm. × 5 mm. reflexis ; *floribus* in capitulis ca. 1·5 cm. diam. confertis multifloris, pedunculo 3–4 cm. araneoso, capitulis nonnunquam 2–3 in cyma 2–3-chotoma confertis, *bracteis* involucrantibus paucis saepius ovatis ca. 5 mm. × 4 mm., extus araneosis intus glabris fuscis ; *calycis* lobis oblongo-lanceolatis ad 3–4 mm., demum patentibus nec valde reflexis ; *corollae* extus arachnoideo-glabratae tubo 6–7 mm. insuper parum ampliato, lobis ovatis 1·5 mm. × 2 mm. deflexis ; *fructu* manifeste pedicellato (Pl. IX, 1–3).

Lagos : *Miller* 50 ! 68 ! 70 ! Hbb. Kew., Berol.

93. S. brachiata Wernham.

Frutex scandens ramulis celerrime glabrescentibus, florentibus 8–12 cm. longis divaricatis ; *foliis* ellipticis vix acuminatis ad ca. 7 cm. × 4 cm., supra in vena centrali glaberrimis juventute sparse arachnoideis subtus griseis araneoso-lanuginosis, venis secundariis paucis utrinque 6–8, *petiolo* vix ad 1 cm. ; *floribus* albis in capitulis confertis 1·5–2 cm. diam. multifloris, *bracteis* involucrantibus paucis ovalibus ca. 5 mm. × 4 mm., pedunculo araneoso ad 1·5–1·8 cm. ; *calycis* lobis lanceolatis ca. 3 mm. longis nec reflexis ; *corolla* extus dense sericeo-pilosa, insuper parum ampliata 8–9 mm. longa, lobis angustis 1·5 mm. longis, *fructu* subsessili.

Cameroons : Tibati, 2900 ft., *Ledermann* 2450 ! Hb. Berol.

94. S. cruciata Wernham.

Frutex scandens ramulis densissime rufo-sericeis tarde glabrescentibus ; *foliis* ellipticis ad 12 cm. × 7 cm. brevissime acuminatis acutis, supra ipsis in venis glaberrimis subtus in venis dense sericeis aliter lanugine fusco-rufo minuto densissimo indutis, *petiolo* ad 1 cm., *stipulis* ovalibus ad 7 mm. × 6 mm. nec mox reflexis ; *floribus* albo-viridibus in capitulis compactis confertis ca. 2 cm. diam., *bracteis* involucrantibus paucis, exterioribus 2 ca. 12 mm. × 7 mm. acuminatis connatis, pedunculo ad 5 cm. dense appresse piloso ; *calycis* laciniis lanceolato-oblongis acutissimis 4–5 mm. longis ciliatis ; *corollae* tubo 9–10 mm. longo basi ventricoso insuper parum ampliato, extus nisi insuper glaberrimo, lobis angustis ca. 1·5 mm. longis suberectis (Pl. XII).

Cameroons : Lomi, *Mildbraed* 5433 ! Bebai, *Tessmann* 751 ! Hb. Berol.

95. **S. Duparquetiana** H. Baillon MS.

Frutex ramulis sparsim patente pilosis ; *foliis* saepe obovatis 8 cm. × 4·5 cm. raro excedentibus, supra nisi in vena centrali subtus nisi in venis strigillosis glaberrimis, reticulo tertiario subtus valde conspicuo ; *floribus* in capitulis ca. 1·5 cm. diam. paucifloris compactis, pedunculo validiusculo 5 mm. longo, *bracteis* paucis involucrantibus exterioribus 2 connatis sparse strigosis ; *calycis* sparsiuscule strigillosi tubo ca. 3 mm., lobis fere ad 1 cm. infra medium erectis insuper curvato-patentibus ; *corollae* tubo latiusculo insuper leniter ampliato extus strigoso infra glabrato, 8–9 mm. longo, ore 3–4 mm. lato, lobis validis lanceolatis 5 mm. × 2 mm.

Gaboon : *Duparquet* ! Hb. Mus. Paris.

This and the next species are distinguished by their relatively smooth and subglabrous organs in comparison with the typical members of the genus ; and by the compact, few-flowered capitula with very definite involucres of connate bracts.

96. **S. Robbii** Wernham.

Frutex 12–15-pedalis ramulis strigosis tardiuscule glabrescentibus ; *foliis* plerumque ellipticis ad 9–11 cm. × 4 cm., obtuso apice, basi acutis, supra praecipue in venis asperulo-pubescentibus subtus pariter nisi in venis strigosis indutis nec araneosis nec lanatis, *petiolo* 15–14 mm., *stipulis* ovatis ca. 4 mm. × 4 mm. mox deciduis : *floribus* in capitulis ca. 1·5 cm. diam. paucifloris compactis nonnunquam 2–3 in cyma 2–3-chotoma confertis, pedunculo validiusculo saepe leniter curvato 2–2·5 cm. sparsiuscule et inconspicue strigoso, *bracteis* paucis involucrantibus 2 exterioribus connatis ovatis concavis parte libero ca. 8 mm. connato ad 2–3 mm., extus sparse strigillosis ; *calycis* tubo 2·5 mm. lobis 5–6 mm. longis oblongis extus strigillosis ad 9–10 mm. accrescentibus ; *corollae* tubo latiusculo insuper leniter ampliato extus in dimidio inferiore glabro insuper lineatim strigoso, 8–9 mm. longo, ore 3–4 mm. lato, lobis patentibus crassiusculis lanceolatis ad 4 mm. × 1·5 mm. (Pl. X, 1, 2).

Old Calabar : *Robb* ! Hb. Mus. Brit. Gaboon : Libreville, *Klaine* 771 ! 2531 ! Sea-shore, *Thollon* 14 ! Njobe, Ogooue, *Thollon* 60 ! Hb. Mus. Paris.

Nearly related to the preceding species, from which it differs in the indumentum of the shoot, the larger and differently-shaped leaves, and the length of the peduncle. The inflorescence is typically an umbel of 3–4 heads, with a common and partial involucres.

97. **S. trigemina** K. Schum., in Engl. Bot. Jahrb. xxviii. 59 (1899). Nom. vulg. (Pahouin) : *Oudvikoui*.

Frutex scandens ramulis sericeo-strigosis tardiuscule glabrescentibus ; *foliis* ovatis v. oblongis in ramulis florentibus ad

8–11 cm. × 3–5·5 cm., venis secundariis utrinque ca. 9, in sterilis ad 14 cm. × 9 cm. venis utrinque 20, utrinque nisi in venis supra sparsissime subtus densius strigosis glabris, *petiolo* 1·5 cm.–2·5 cm., *stipulis* ovatis acutis 3–14 mm. × 4–15 mm. reflexis; *floribus* albis in capitulis 3–6-floris dispositis 1·5–2 cm. diam., pedunculo 5–8 mm. validiusculo, *bracteis* involucrantibus ovatis acutis basi vix connatis extus strigillosis; *calycis* limbo tubuloso extus sericeo tubo 3–4 mm. lobis 2·5–3·5 mm. oblongis obtusis; *corolla* infundibulari extus sericea tubo 9–10 mm. ore 4 mm. lato lobis patentibus lanceolatis 4 mm. longis; *bacca* rubra (Pl. XII).

Cameroons: Bipinde, 1300 ft., *Zenker* 1821! Gaboon: Libreville, *Klaine*! *Jolly* 126! Hbb. Mus. Brit., Kew., Berol., Boiss., Mus. Paris.

98. **S. Laurentii** De Wild. Miss. Laur. 276 (1906).

Frutex scandens ramulis appresse pilosis demum glabrescentibus; *foliis* ad 6–7 cm. × 3–3·5 cm. ellipticis basi acutis breviter acuminatis, utrinque nisi sparsissime in venis strigosis glabratis, *petiolo* ad ca. 12 mm., *stipulis* rotundo-ovatis 5 mm. × 5 mm.; *floribus* albis in capitulis parvis 7–9 mm. diam. paucifloris confertis, pedunculo strigilloso 1–2·5 cm. longo, *bracteis* involucrantibus ovatis decussato-imbricatis basi subliberis extus glabratis; *calycis* limbo in laciniis 2 mm. obtusis diviso, tubo 3–4 mm.; *corollae* tubo extus glabro 6–7 mm., lobis lanceolatis extus dense sericeis 3 mm. longis; *fructu* extus hirsuto, calycis limbo tubuloso ad 4–5 mm. longo persistente coronato.

Cameroons: *Tessmann* 654! Lomi, *Mildbraed* 5416! Ebolowa, *Mildbraed* 5621! Congo: Eala, *M. Laurent* 902! *Pynaert* 510! 1228! 1710! Bomdaka-Nbolé, *Flamigni* 73! Basoko forest, *Claessens* 648! 742! Kasai, *Pogge* 979! Hbb. Berol., Brux.

Var. **velutina** De Wild., *loc. cit.*

Planta villosior praesertim fructu.

Congo: Lulonga, *E. & M. Laurent*! Likimu, *Malchair* 328! Boanga, *Jespersen*! Hb. Brux.

De Wildeman (*loc. cit.*) recognises a second variety, *Pynaertii*, with the characters of glabrous calyx-lobes longer than the tube of the limb. I am inclined, however, to refer the plants on which he bases this variety, named below, to the type-species:—

Congo: New Anvers, *Pynaert* 12! Eala, *Pynaert* 579! Hb. Brux.

The calyx in this species and its allies displays a noticeable tendency to glabrousness, and the relative size of the lobes and limb is largely a matter of stage of development; I have found the latter character frequently misleading in dealing with this genus.

99. **S. Dinklagei** K. Schum., in Engl. Bot. xxiii. 428 (1897).

Frutex glaber scandens ad 14-pedalis ramulis nisi natu minimis sparse strigillosis glaberrimis; *foliis* elliptico-oblongis

breviuscule obtuse acuminatis basi acutis, fere glabris, 3–7 cm. × 1–3 cm., venis secundariis utrinque 6–7, *petiolo* brevissimo vix ad 3 mm. ; *floribus* in capitulis paucifloris parvis vix 1 cm. diam. confertis, pedunculo 1·5–2 cm. glabro, involucri *bracteis* extimis suborbicularibus obtusis glabris intimis spathulatis multo minoribus ; *calycis* tubo 3–4 mm. lobis vix 2 mm. obtusis ; *corolla* extus superne strigosa tubo 4 mm. lobis 1·5 mm. longis ; *bacca* grisea succo nigricante (Pl. XII).

Cameroons : Batanga, *Dinklage* 1124 ! 1284 ! Congo : Bangala, 1000 ft., *Hens* 139 ! Hbb. Kew., Berol., Brux., Deless.

Similar to the preceding species, but readily distinguished by the almost glabrous branchlets and peduncles, and by the smaller and differently-shaped corolla.

100. **S. Dewevrei** De Wild., in Ann. Mus. Congo III. i. 112 (1901).

Frutex scandens ramulis pilis longis patulis sparsim indutis tarde glabrescentibus ; *foliis* ellipticis utrinque acuminatis 15 cm. × 6–7 cm., apice obtuso margine longe piloso, aliter mox glabrescentibus, venis secundariis utrinque 8 paullo prominentibus, *stipulis* suborbicularibus glabris fere 1·5 cm. longis ; *floribus* albis sessilibus in glomerulis, pedunculo 1·5–3 cm. longe primo hirsuto demum glabro confertis, *bracteis* involucrantibus suborbicularibus 2–2·5 cm. × 2–2·5 cm. basi connatis intus ad basin pilosis ; *calycis* limbo tubuloso 12–15 mm. × 5–6 mm., lobis 5 brevibus 2–3 mm. × 2–3 mm. margine ciliato, intus nisi ad basin piloso glabro ; *corolla* tubulosa exserta apice strigoso tubo gracili extus basin versus glabro 15–18 mm. × 1 mm., lobis 5 ovatis acutis ca. 2 mm. × 1 mm. extus longe pilosis ; *ovario* subglabro.

Congo : Waboundou, *Dewèvre* 1143 ! Eala, *M. Laurent* 1597 ! Bombé, coffee-plantations, *Claessens* 711 ! Hb. Brux.

Var. *α.* **latifolia** De Wild., Miss. Laur. 276 (1906).

Planta *foliis* multo majoribus 18–22·5 cm. × 8–12 cm. saepius basi cordatis late ovalibus.

Congo : Isangi, Ifuta, *E. & M. Laurent* ! Hb. Brux.

Var. *β.* **glabra** Wernham.

Ad 6-pedalis scandens, ramulis petiolisque glabris ; *foliis* minoribus ; *pedunculis* 5–11 mm. glaberrimis ; *floribus* roseis (Pl. IX, 4, 5).

Congo : Irumu, 3250–3575 ft., *Mildbraed* 2823 ! Hb. Berol.

101. **S. gigantea** Wernham. Nom. vulg. (Kasai) : *Mokessé*.

Arbor magna ramulis glabris ; *foliis* oblongis ad 15 cm. × 6 cm. saepius breviter acuminatis, utrinque nisi subtus in venis et margine pilis paucis conspersis strigillosis glaberrimis, *petiolo* ad

1·5 cm. subglabro vel supra strigoso, *stipulis* glabris ovatis vix acutis ca. 1·7 cm. × 1·6 cm.; *floribus* in capitulis subsessilibus pedunculo glaberrimo confertis ca. 6-floro ca. 2·5 cm. diam., *bracteis* 2–3 suborbicularibus ca. 1·5 cm. × 2 cm. glaberrimis connatis, involucrum cupularem intus basi dense sericeo-pilosum formantibus; *calyce* tubuloso ca. 15 mm. × 5 mm. dentibus oblongis obtusis 3·5 mm. demum ad 6 mm. longis, basi 2·5 mm. latis.

Kasai: *Sapin*! Hb. Brux.

"Grand arbre des forêts." The mounted specimens bear a close resemblance to the preceding species; the chief distinction lies in the tree-habit, in the almost complete glabrousness, the size and shape of the stipules and of the calyx-lobes.

The structure of the cupular involucre in this and the preceding species illustrates the transition to the genus *Stipularia*. The bracts are often connate in the inflorescences of Capitatae, but never to such a degree as in these two species, which appear to be considerably isolated from the rest.

Sectio iv. Floribundæ Wernham.

Frutices scandentes; *inflorescentia* cymosa composita demum paniculata diffusa laxa floribunda, cymulorum *bracteis* conspicuis.

102. **S. segregata** Hiern, in Fl. Trop. Afr. iii. 77 (1877). *S. Henningsiana* Büttn., in Verh. Bot. Ver. Brand. xxxi. 79.

Frutex scandens 15-pedalis, ramulis dense appresse pilosis demum glabrescentibus; *foliis* ovatis saepe longiuscule acuminatis acutis ad ca. 11 cm. × 5·5 cm. basi rotundatis, supra asperulo-pubescentibus subtus nisi in venis utrinque 12–16 appresse pilosis glabrescentibus, *petiolo* 1–2 cm., *stipulis* ovatis acutis ca. 7 mm. × 9 mm. extus glabratis; *floribus* griseis vix 5 mm. longis breviter pedicellatis in paniculis cymosis compositis demum valde diffusis et laxis dispositis, cymulorum *bracteis* conspicuis anguste ovalibus v. oblongis nec involucrantibus; *calycis* lobis ad 4 mm. sublinearibus; *corollae* extus puberulae tubo ca. 3 mm. lobis ovatis; *ovario* biloculari; *bacca* sparsissime puberula a calycis persistentis lobis 5–6 mm. × 1–1·5 coronata, paniculo fructescente ca. 9 cm. × 5 cm. metiente.

Cameroons: Bipinde, *Zenker*! Gaboon: *Klaine* 100! 123! 377! River Muni, *Mann* 1766! between Gaboon and Sibange, *Büttner* 437! 443! *Dinklage* 591! French Congo: Ogooué, N'Djole, *Thollon* 117! Hbb. Kew., Berol., Mus. Paris.

The nearest ally to the next species; but the inflorescences are much less extensive and the bracts less conspicuous.

103. **S. floribunda** K. Schum., in Engl. Bot. Jahrb. xxiii. 428 (1897).

Frutex scandens ramulis appresse pilosis deinde glabratis; *foliis* ovatis v. oblongis breviuscule acuminatis acutis, 8–17 cm.

× 5·5–8·5 cm., basi rotundatis v. subcordatis, utrinque nisi subtus in venis supra in vena media appresse pilosis glabris, venis secundariis utrinque 20 v. pluribus, *petiolo* 1–2·5 cm., *stipulis* ovatis acuminatis extus puberulis; *floribus* albo-viridibus in cymulorum paniculis ad 30 cm. longis diffusis laxis floribundis folia longe superantibus sessilibus, pedunculo valido 12 cm. v. longiore, cymulorum *bracteis* foliaceis conspicuis suborbicularibus ad ca. 12 mm. × 9 mm.; *calycis* lobis obtusis glabris subfoliaceis ca. 2 mm. longis; *corolla* 5 mm. longa extus nisi in loborum apice glabra cylindracea tubo 1·5 mm. lato; *fructu* albido.

S. Nigeria: Oban, *Talbot* 228! Cameroons: *Ledermann* 918! *Mildbraed* 5122! 5141! *Rudatis* 52! *Staudt* 1! 159! *Tessmann* 716! *Zenker* 1820! 3232! Congo: Djuma valley, *Gentil*! Kimuenza, *Gillet* 1749! Hbb. Mus. Brit., Kew., Berol., Boiss., Brux., De Cand., Deless., Holm., Mus. Paris.

Var. **paucinervis** Wernham.

Foliorum venis secundariis distantibus utrinque 10–12 planta omnino glabrior (Pl. X, 3–5).

Cameroons: Batanga, *Dinklage* 743! 1391! Hb. Berol.

A very distinct species, at once recognizable by the large, very diffuse, panicle of small cymes, with conspicuous orbicular bracts, and small tubular glabrous flowers.

Species affinitatis dubiæ.

104. **S. bracteolata** Wernham.

Frutex ramulis dense rufo-pubescentibus validiusculis tarde glabrescentibus; *foliis* ellipticis ad ca. 10·5 cm. × 4·5 cm., utrinque angustatis, utrinque nisi in venis pubescentibus v. strigillosis glabris, venis secundariis utrinque ca. 10, *petiolo* ca. 11 mm., *stipulis* ovatis ca. 3–4 mm. × 3 mm. nisi parte inferiore brevissimo persistente caducis nec reflexis; *floribus* saepius in axillis solitariis, pedicello 2–3 mm. cujus in apice *bracteolis* saepius 2 ovatis acuminatis 1–1·5 mm. longis patentibus; *calycis* extus dense appresse-pubescentis lobis oblongo-lanceolatis ca. 4 mm. subacutis tubo 2 mm. longo; *corollae* extus dense appresse subsericeo-pubescentis tubo latiusculo, in alabastro cylindrico ad 14 mm. metiente.

French Guinea: Labé, *Chevalier* 12390! Hbb. Kew., Berol., De Cand., Deless., Mus. Paris.

None of the specimens which I have examined bears an open corolla; and the extreme reduction of the inflorescence further masks the affinity of the species—though it is undoubtedly, I think, referable to *Sabicea*.

105. **S. verticillata** Wernham.

Frutex ramulis dense et longiuscule flavo-viride pubescentibus; *foliis* in verticillis saepius 3-natis, coriaceis, obovatis v. ellipticis ca. 7–9 cm. × 3·5–4·3 cm. breviter subitoque acuminatis subacutis, basin versus rotundatum leniter angustatis, utrinque sparse scabridis, supra dilute viridibus venis conspicuis impressis, subtus griseo-brunneis venis dense puberulis prominentibus, secundariis utrinque ca. 12, *petiolo* brevissimo validiusculo dense puberulo, *stipulis* latis breviusculis in setis paucis fere ad basin divisis; *floribus* in axillis solitariis, pedicello ad ca. 5 mm. hirsuto, bracteolis 2–3 lanceolatis 5 mm. longis; *calycis* lobis lanceolatis densiuscule hirtis ad 9 mm. longis; *corollae* tubo gracili, extus sparsiuscule patente piloso, 1·7–2 cm. longo apicem versus plus minus subito ampliato, lobis glabris lineari-lanceolatis 9 mm. longis.

North Madagascar: *Humblot* 213! ex Hb. Drake in Hb. Mus. Paris.

Remarkable for the whorled leaves, and the solitary flowers with slender corolla and narrow lobes nearly a centimetre long. The fimbriate stipules suggest affinity with the other Madagascar species; but in view of the verticillate leaves—unique for the genus—and solitary pedicellate flowers, the systematic position of this species must remain in doubt for the present.

Species excludendæ.

S. aurea Steud. Nom. ed. i. 712 = *Coccocypselum aureum*.

S. crinita A. Rich. Mém. Soc. Hist. Nat. Par. v. 228.

A Madagascar plant, which I have examined in the Paris Herbarium. The flowers are in too young a state for certain determination; but I have little hesitation in excluding this plant from the genus *Sabicea*. The inflorescences are terminal on the shoots and densely clothed with rufous hairs: it may be a new species of *Flagenium*.

S. edulis Seem. in Hook. Kew Journ. iii. (1851) 266.

Collected in Panama on the "Herald" voyage. It is stated to bear an edible fruit, the common name being *madroño de comer*. In his account of the voyage, however (Bot. Her. 136 (1854)), Seemann identifies the same fruit with that of *Alibertia edulis* A. Rich.—which is clearly, therefore, synonymous with *Sabicea edulis*.

S. guianensis Baill. Hist. Pl. vii. 320 (Guiana) = *Patima guianensis* Aubl.

S. macrophylla Steud. Nom. ed. ii. 489 = *Palicoureae* sp.

S. Moralesii Griseb. Cat. Pl. Cub. 124 (Cuba) = *Lasianthus Moralesii* Wright.

S. Perrottetii A. Rich. Mém. Soc. Hist. Nat. Par. v. 228 = *Uncariae* sp.

S. pumila Bartl. ex DC. Prod. iv. 440.

Habitat, "in Peruviae montibus Huanoccensibus." The description reads, "caule herbaceo glabro, foliis oblongo-lanceolatis glabris sericeo-ciliatis, stipulis subulatis, capitulis pedunculatis axillaribus paucifloris" (Hb. Haenke).

The glabrousness and the subulate stipules suggest that the plant is not rightly placed in *Sabicea*. The material in the De Candolle herbarium, which I have examined, is very scanty, and inadequate for certain determination; but the leaf, which is quite glabrous except for the hirtous mid-rib, and has the veins flattened on the lower surface, is manifestly unlike that of any *Sabicea* species. It suggests *Hoffmannia*.

S. purpurea A. Rich. *loc. cit.* 228, and **S. tomentosa** A. Rich. *loc. cit.*, both Brasilian plants, are unmentioned by Schumann in the Flora Brasiliensis. I have examined the respective types in the Paris Herbarium. Both have pedunculate capitate inflorescences—a very rare feature among the American species of *Sabicea*; and the linear to linear-subulate stipules do not suggest *Sabicea*. Both, I conclude, are species of *Coccocypselum* —the latter being clearly *C. canescens* Willd.

S. setosa A. Rich. *loc. cit.* is **Flagenium setosum** Wernham, comb. nov. Frutex ramulis pubescentibus; *foliis* oblongis 13 cm. × 4 cm. breviter acuminatis acutis basi rotundatis, *petiolo* 3–4 mm., supra nisi in vena centrali strigillosis glabris, subtus in venis dense aliter sparsim brunneo-pubescentibus, *stipulis* subulato-acuminatis; *floribus* in fasciculis multifloris diametro ad 2·5–3 cm. confertis; *calycis* laciniis setaceis 7–8 mm. sparsiuscule hirtellis; *corollae* infundibularis glabrae tubo 1·2 cm. longo, ore ca. 8 mm. lato, lobis oblongis 7–8 mm. × 3 mm.

Madagascar: *Chapelier*! Hb. Mus. Paris.

The contorted aestivation of the corolla, apart from any other character, excludes this plant from the genus *Sabicea*.

S. triflora DC. Prod. iv. 439. *Triosteum triflorum* Vahl, Symb. iii. 37 = *Flagenium triflorum* Baill. (see Wernham, in Journ. Bot. li. (1913) 12).

SUMMARY OF COLLECTORS

The numbers of the species are in round brackets ( ). Collectors' numbers are unbracketed; unnumbered specimens appear first in order of specific number; the rest follow in order of collector's number.

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Afzelius. (13), (39).
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Krickels. (18).

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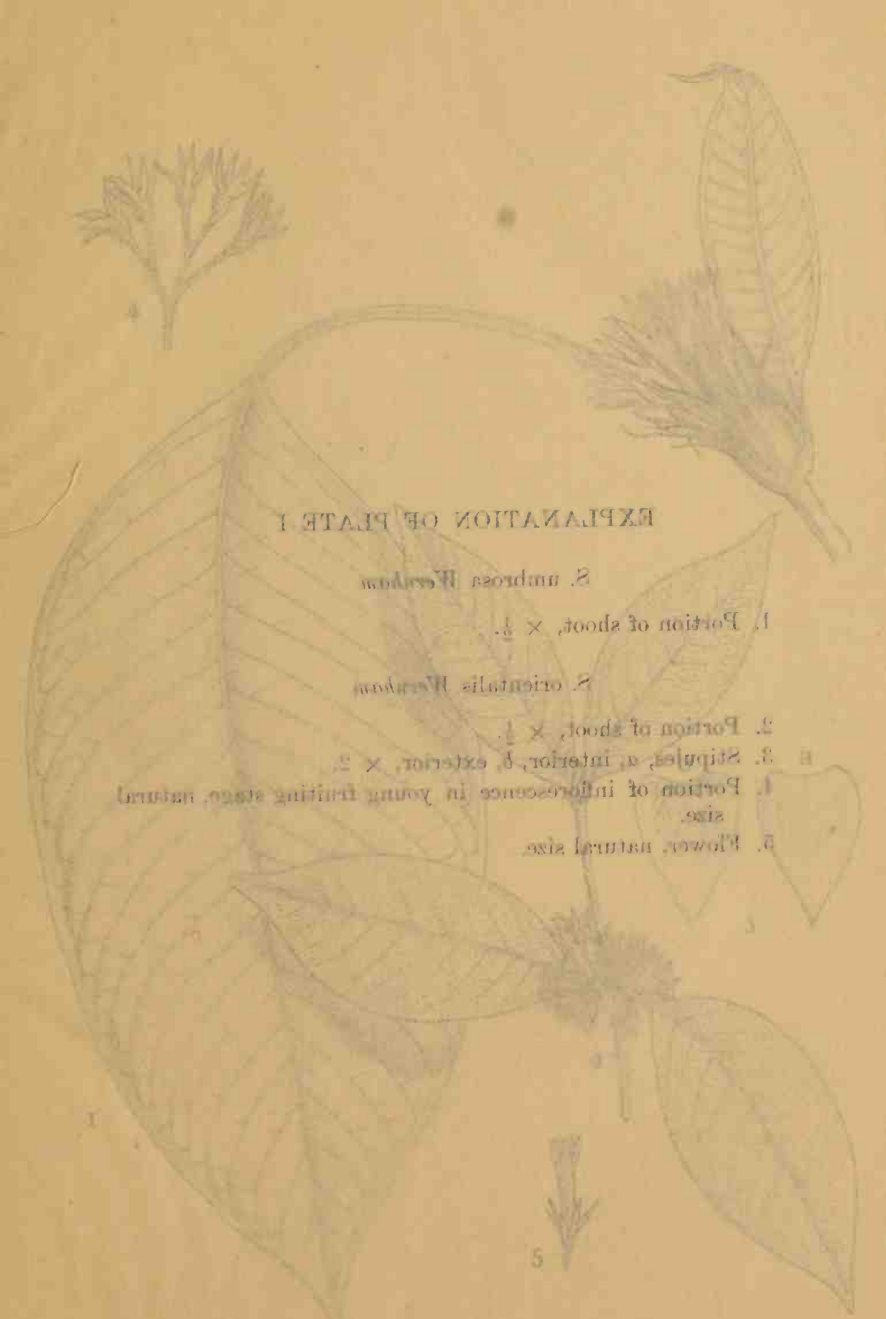


1, S. umbrosa. 2—5, S. orientalis.

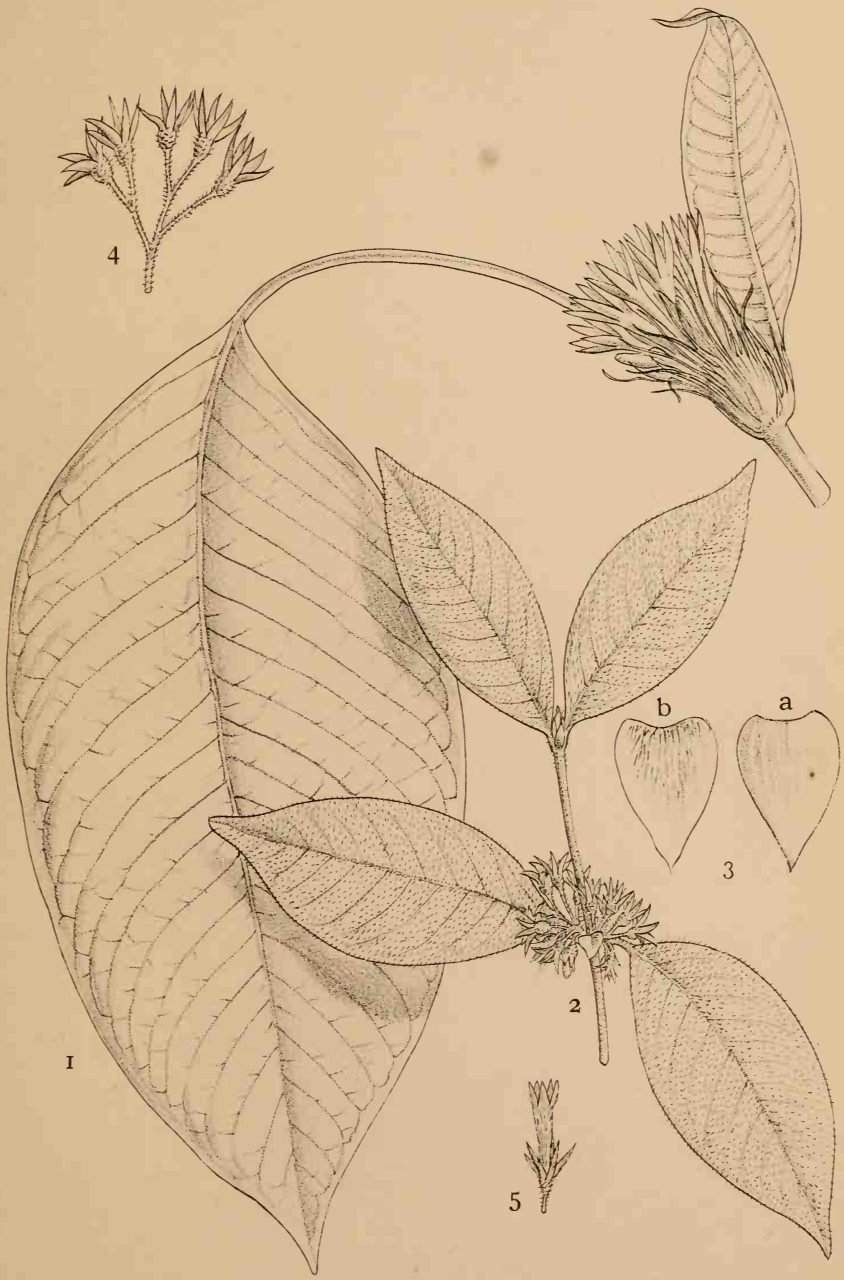
EXPLANATION OF PLATE I

S. umbrosa *Wernham*

1. Portion of shoot, × $\frac{1}{2}$.

S. orientalis *Wernham*

2. Portion of shoot, × $\frac{1}{2}$.
3. Stipules, *a*, interior, *b*, exterior, × 2.
4. Portion of inflorescence in young fruiting stage, natural size.
5. Flower, natural size.



J. N. Fitch del. & lith.

1, S. umbrosa. 2—5, S. orientalis.

S. laxa.

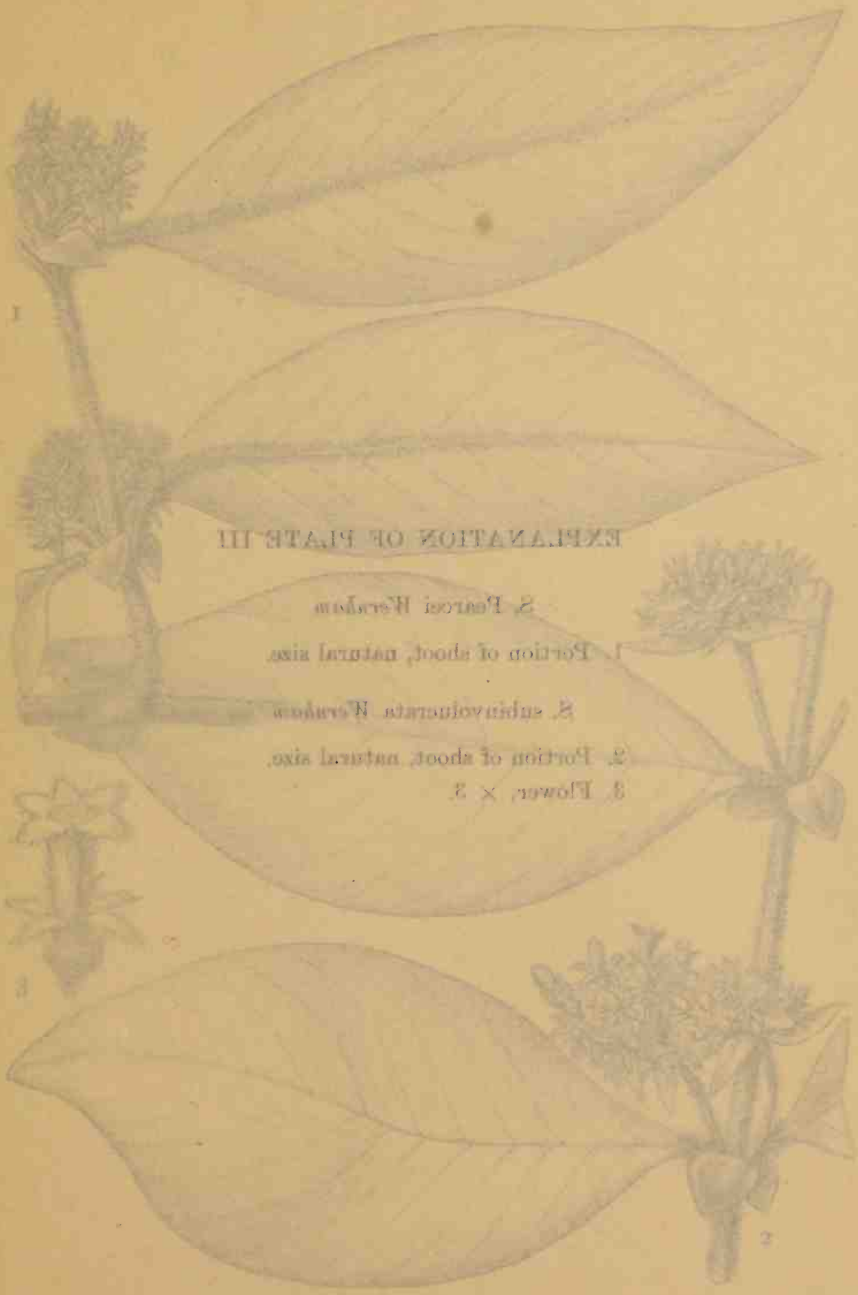
EXPLANATION OF PLATE II

S. laxa *Wernham*

Portion of shoot, × 2.

P. Highley del. & lith.

S. laxa.



1. S. Pearcei. 2, 3. S. subinvolucrata.

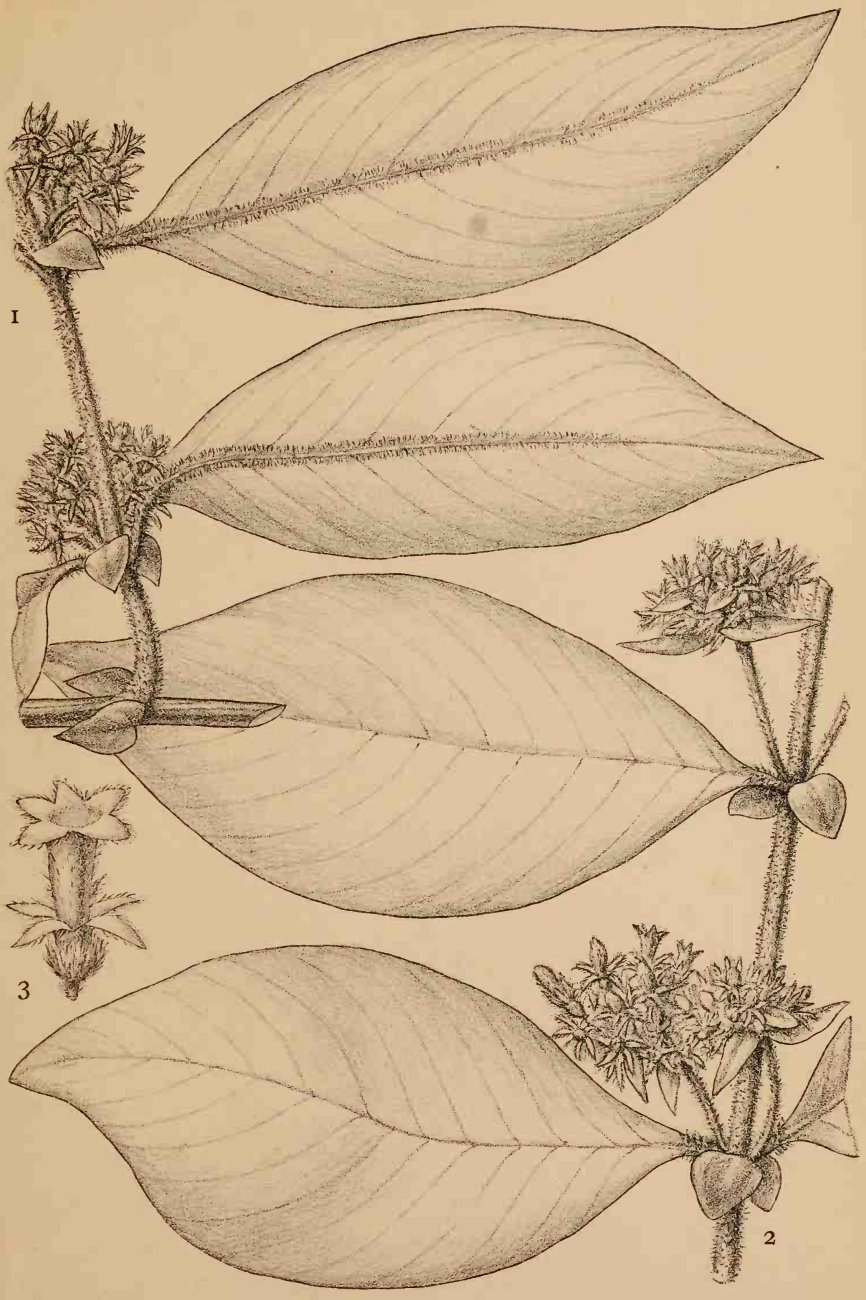
EXPLANATION OF PLATE III

S. Pearcei *Wernham*

1. Portion of shoot, natural size.

S. subinvolucrata *Wernham*

2. Portion of shoot, natural size.
3. Flower, × 3.



P. Highley del. & lith.

1, S. Pearcei.. 2, 3, S. subinvolucrata.

EXPLANATION OF PLATE IV

S. Moorei Verdoorn

1. Aerial shoot, × 1.
2. Stipule, × 2.
3. Portion of young inflorescence, natural size.
4. Flower, × 2.

S. camporum Sprague

5. Aerial shoot, × ½.
6. Stipule, × 2.
7. Inflorescence, natural size.
8. Flower, × 2.
9. Fruit, × 2.

J. M. Pitot del. & lith.

1—4, S. Moorei. 5—9, S. camporum.

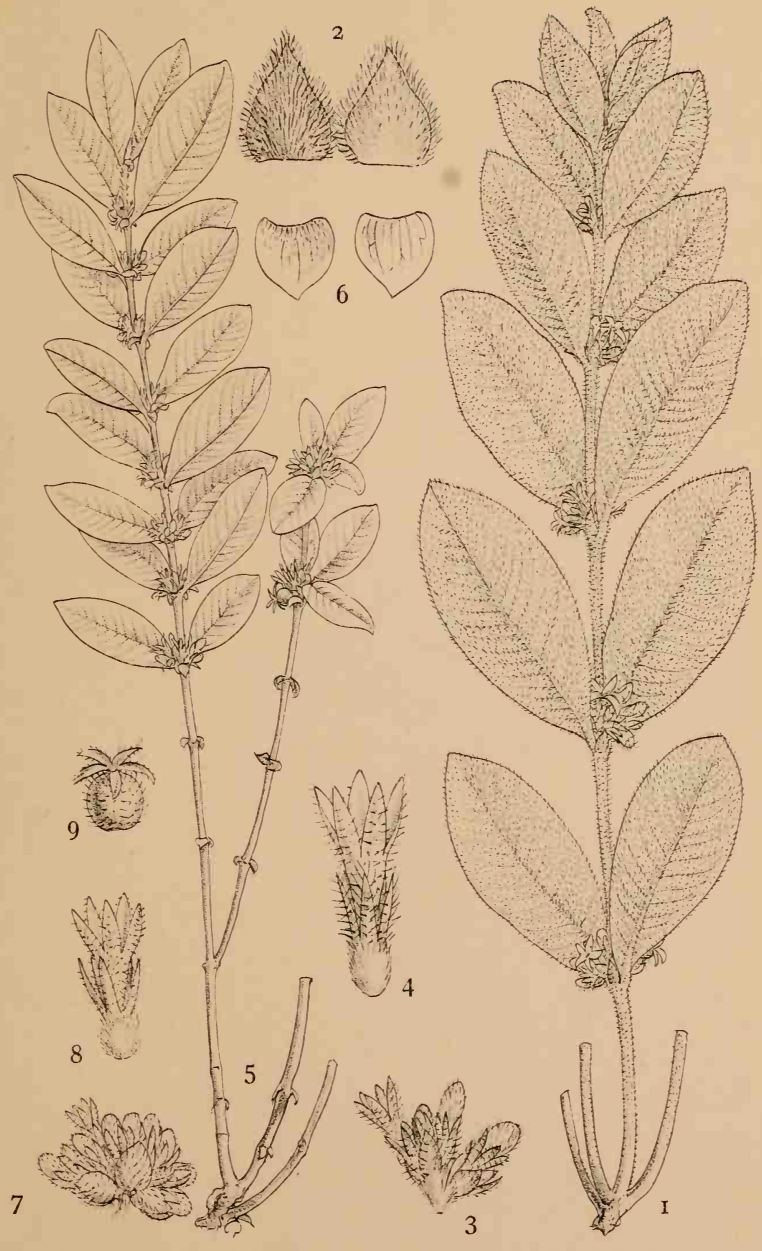
EXPLANATION OF PLATE IV

S. Moorei *Wernham*

1. Aerial shoot, × $\frac{1}{3}$.
2. Stipule, × 2.
3. Portion of young inflorescence, natural size.
4. Flower, × 2.

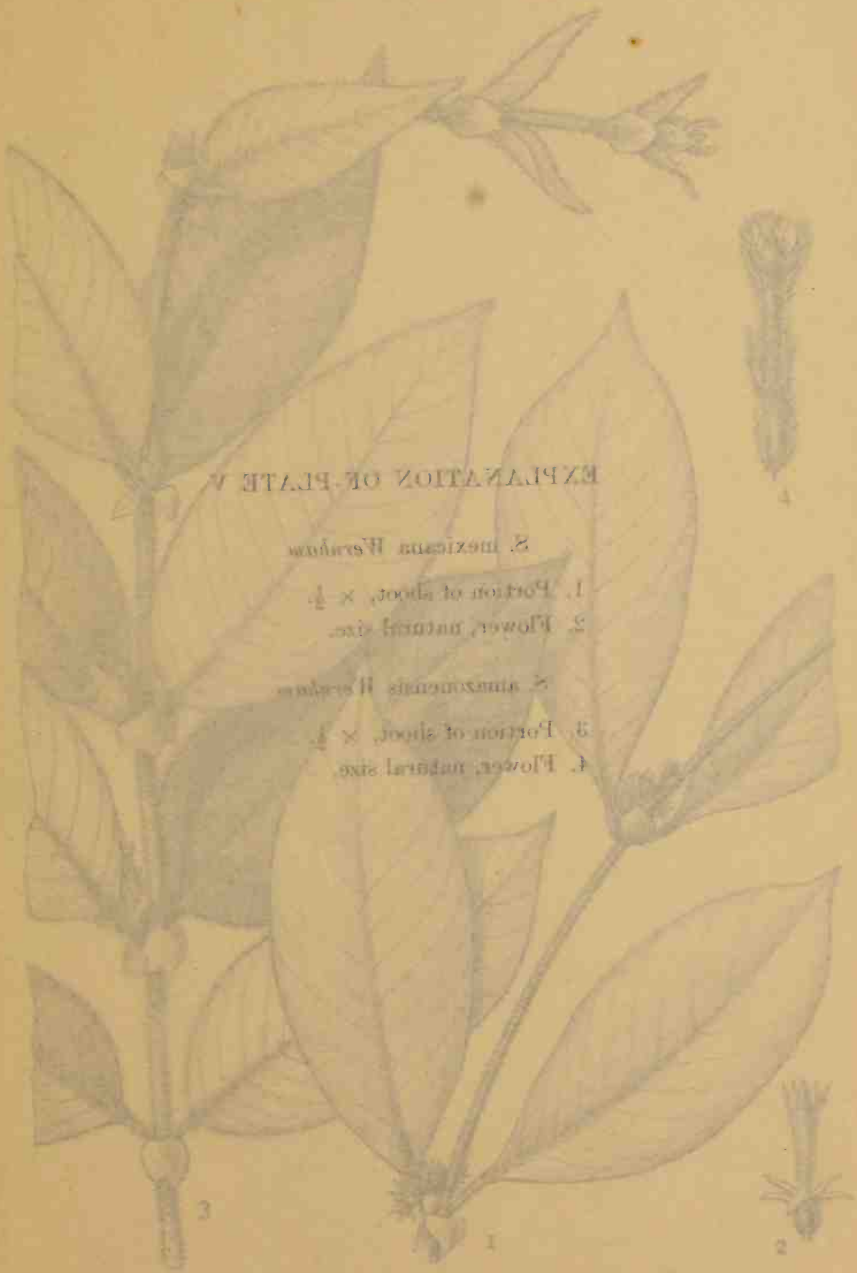
S. camporum *Sprague*

5. Aerial shoot, × $\frac{1}{3}$.
6. Stipule, × 2.
7. Inflorescence, natural size.
8. Flower, × 2.
9. Fruit, × 2.



J. N. Fitch del. & lith.

1—4, S. Moorei. 5–9, S. camporum.



A. Hopkins del. & lith.

1, 2, S. mexicana. 3, 4, S. amazonensis.

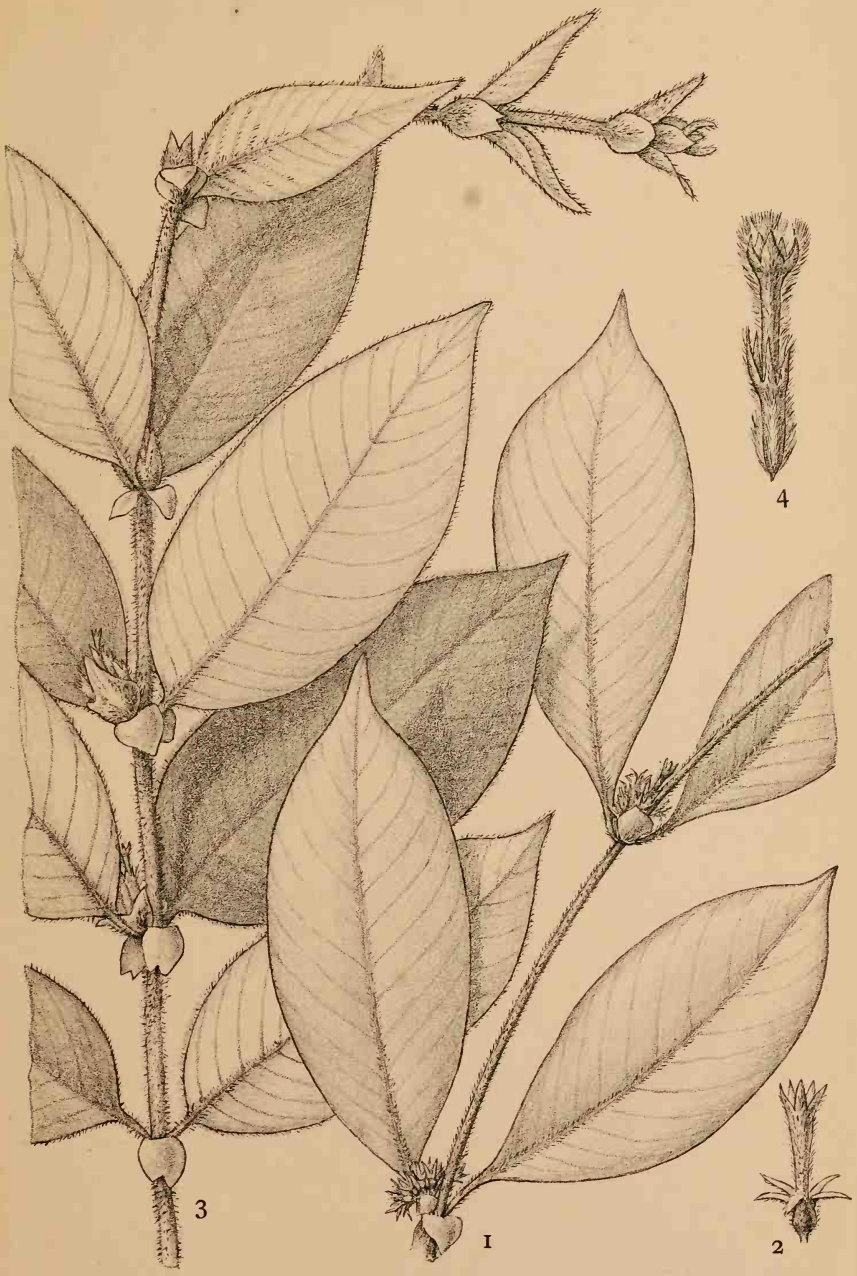
EXPLANATION OF PLATE V

S. mexicana *Wernham*

1. Portion of shoot, × $\frac{1}{2}$.
2. Flower, natural size.

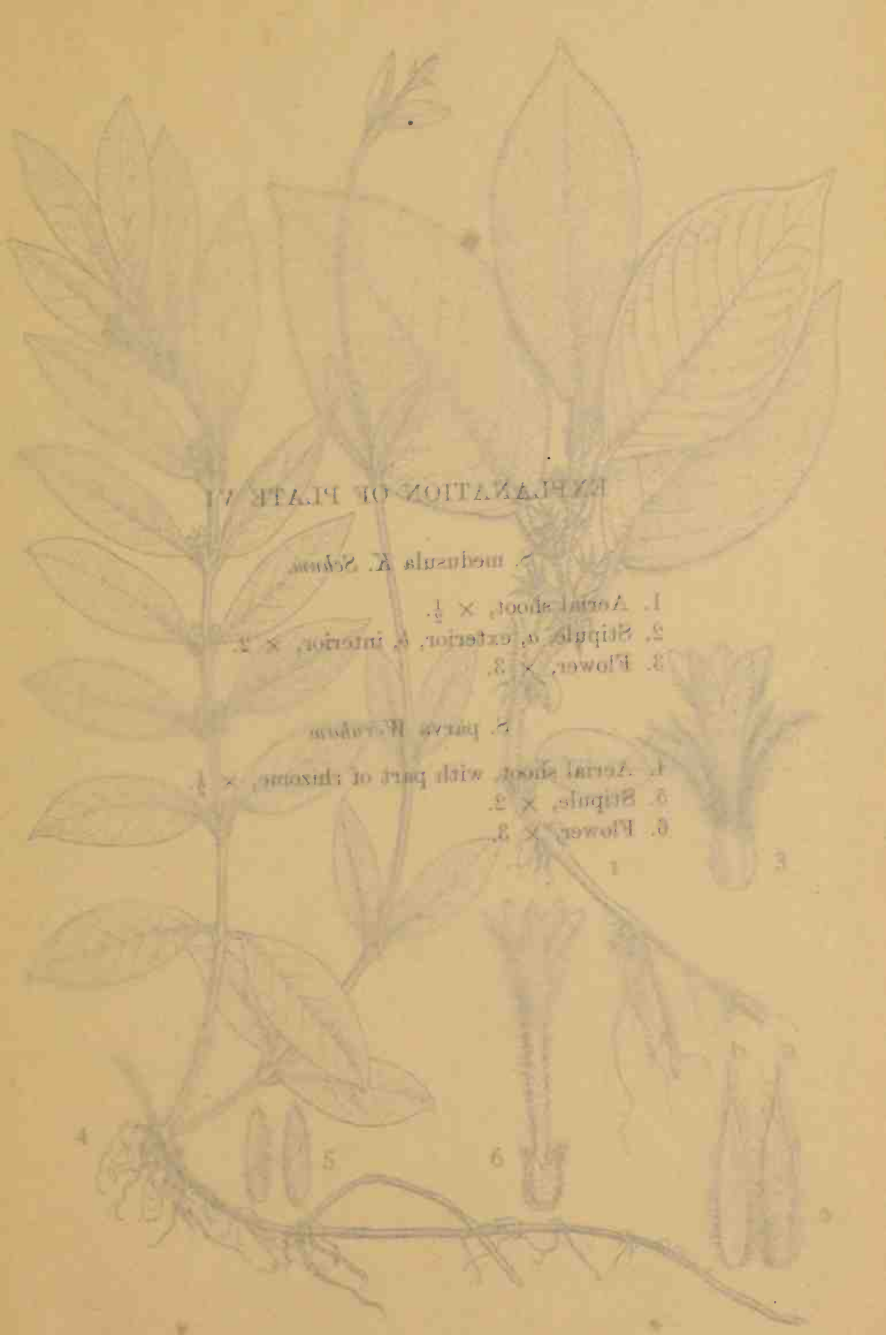
S. amazonensis *Wernham*

3. Portion of shoot, × $\frac{1}{2}$.
4. Flower, natural size.



P. Highley del. & lith.

1, 2, S. mexicana. 3, 4, S. amazonensis.



1–3, S. medusula . 4–6, S. parva.

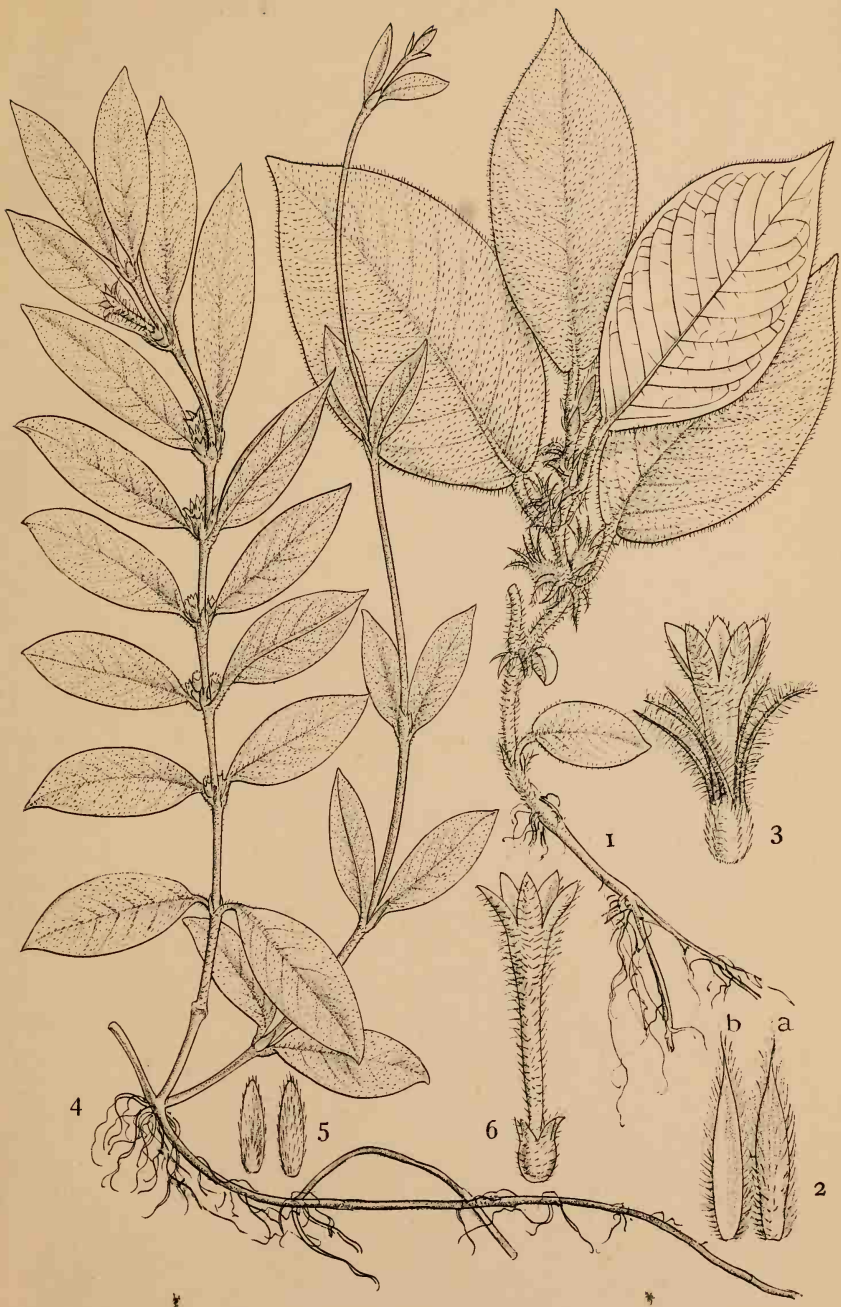
EXPLANATION OF PLATE VI

S. medusula *K. Schum.*

1. Aerial shoot, × $\frac{1}{2}$.
2. Stipule, *a*, exterior, *b*, interior, × 2.
3. Flower, × 3.

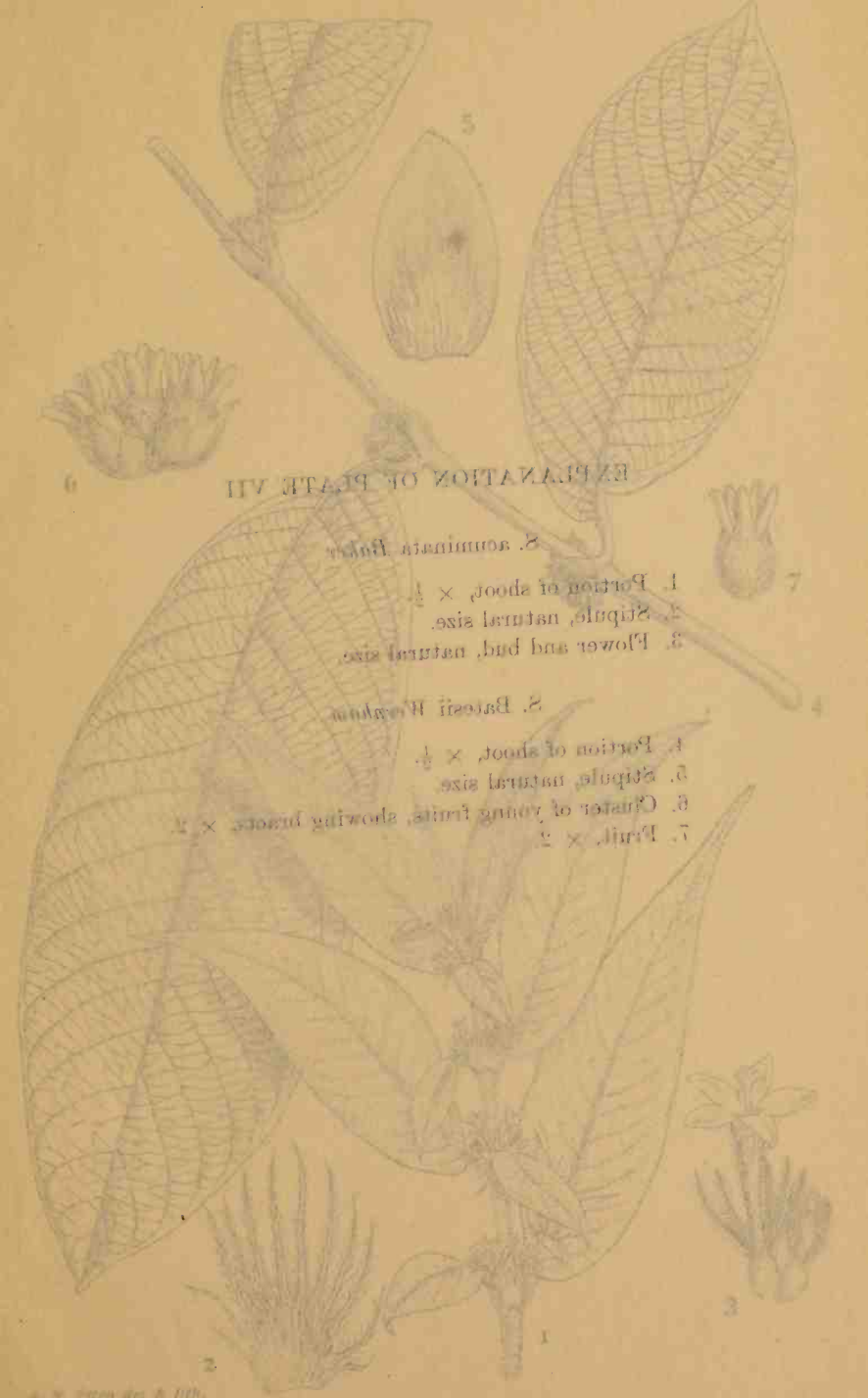
S. parva *Wernham*

4. Aerial shoot, with part of rhizome, × $\frac{1}{2}$.
5. Stipule, × 2.
6. Flower, × 3.



J. N. Fitch del. & lith.

1—3, S. medusula. 4—6, S. parva.



1–3. S. acuminata. 4–7. S. Batesii.

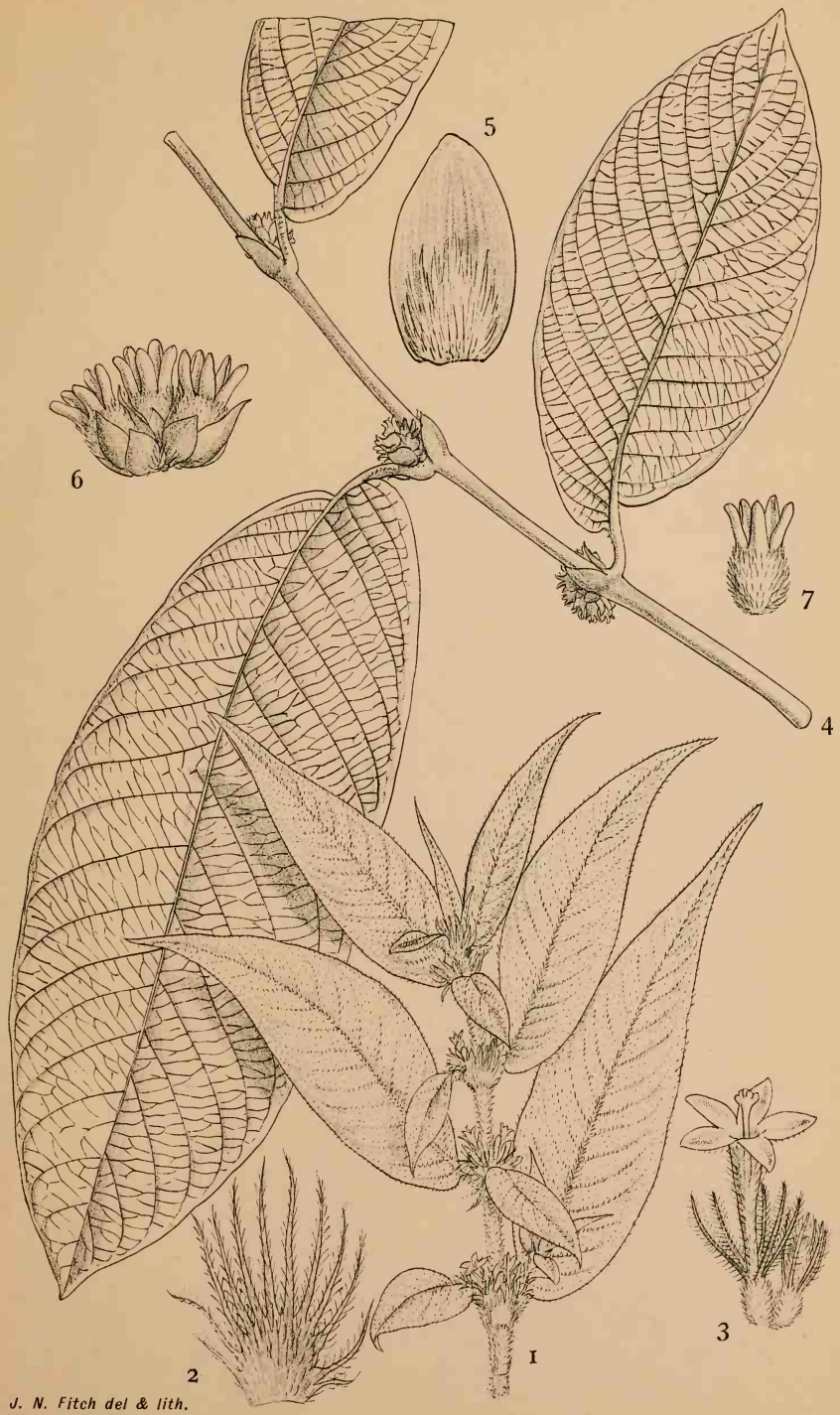
EXPLANATION OF PLATE VII

S. acuminata *Baker*

1. Portion of shoot, × $\frac{1}{2}$.
2. Stipule, natural size.
3. Flower and bud, natural size.

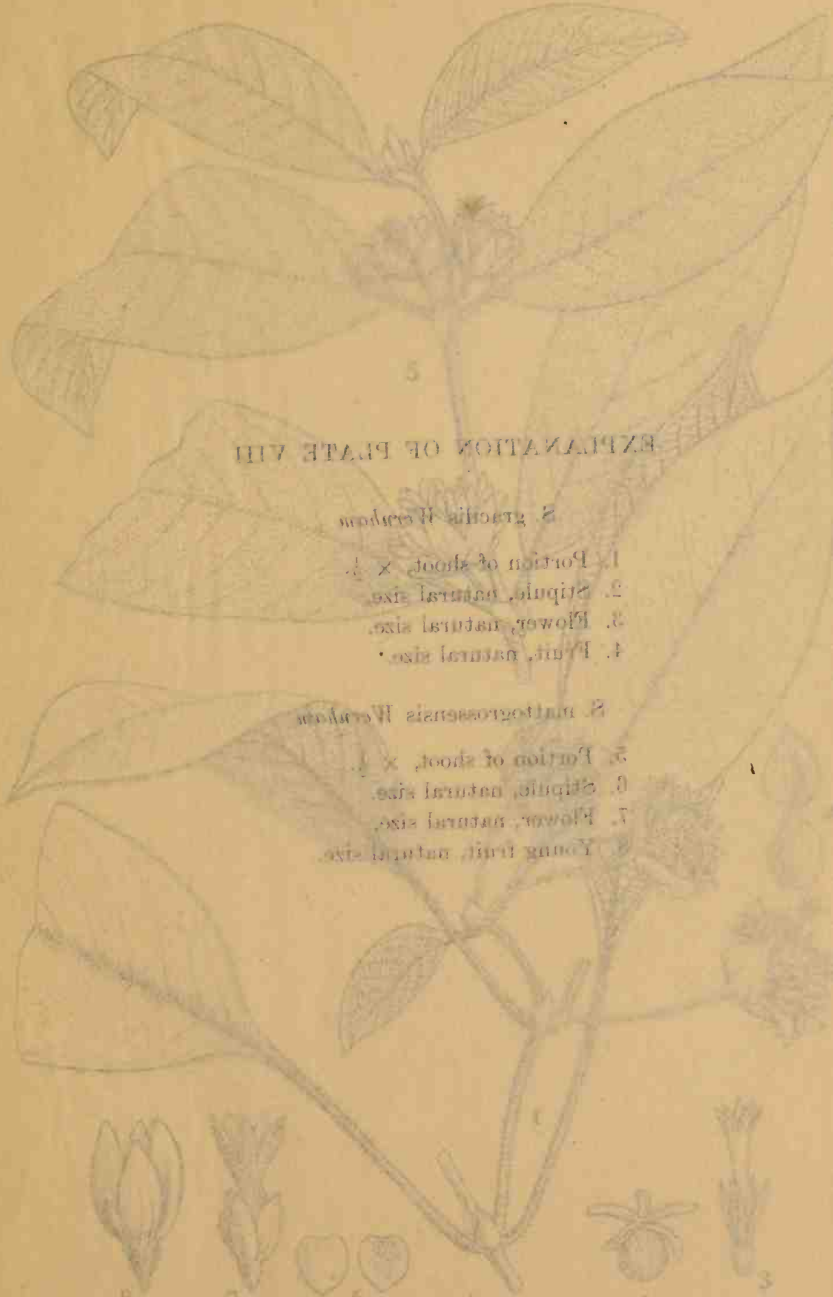
S. Batesii *Wernham*

4. Portion of shoot, × $\frac{1}{2}$.
5. Stipule, natural size.
6. Cluster of young fruits, showing bracts, × 2.
7. Fruit, × 2.



J. N. Fitch del & lith.

1—3, S. acuminata . 4—7, S. Batesii.



1–4. S. gracilis: 5–8, S. mattogrossensis.

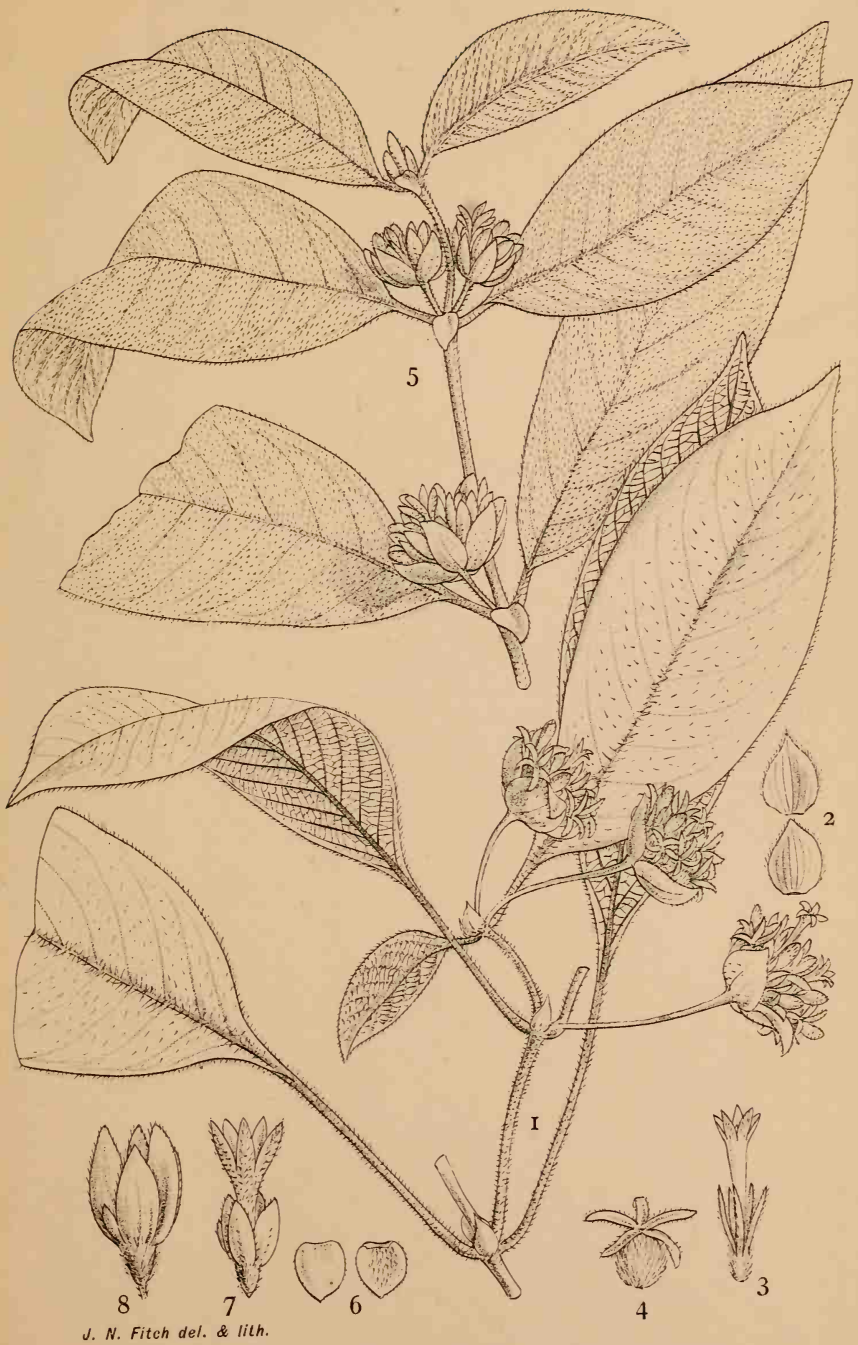
EXPLANATION OF PLATE VIII

S. gracilis *Wernham*

1. Portion of shoot, × $\frac{1}{2}$.
2. Stipule, natural size.
3. Flower, natural size.
4. Fruit, natural size.

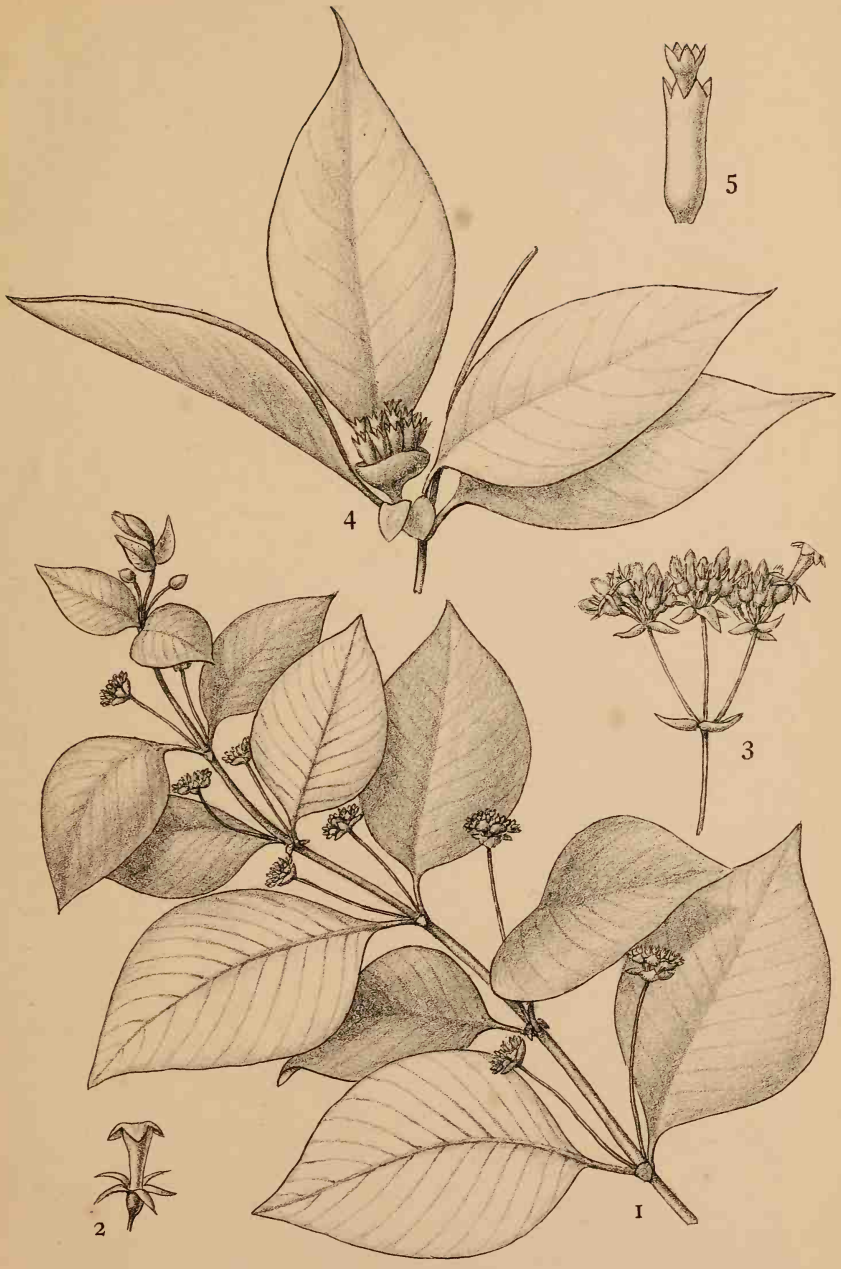
S. mattogrossensis *Wernham*

5. Portion of shoot, × $\frac{1}{2}$.
6. Stipule, natural size.
7. Flower, natural size.
8. Young fruit, natural size.



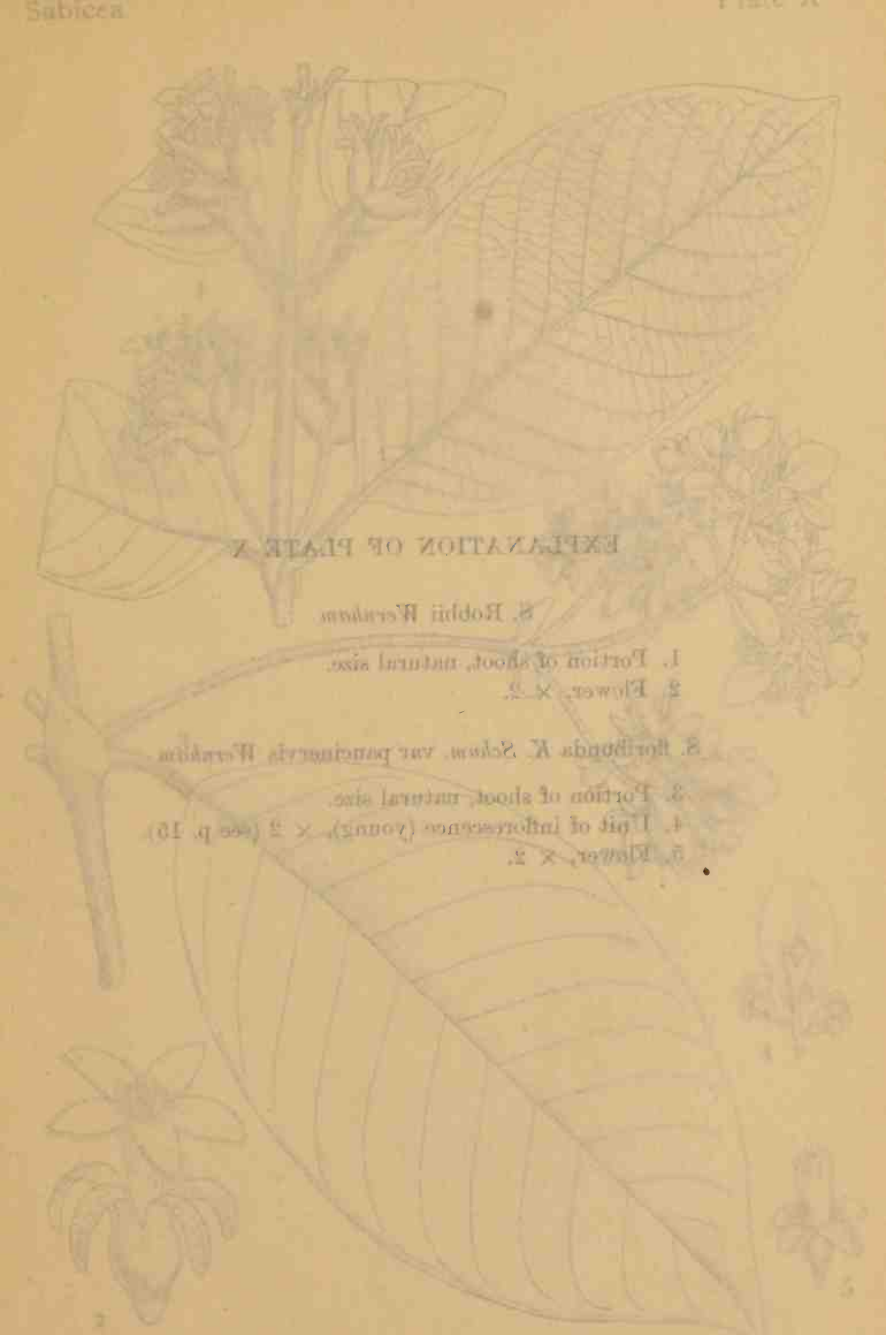
1–4, S. gracilis. 5–8, S. mattogrossensis.

1–3. S. lanuginosa. 4, 5. S. Dewevrei var. glabra.



P. Highley del. & lith.

1—3, S. lanuginosa. 4, 5, S. Dewevrei *var.* glabra.



1, 2, S. Robbiæ. 3–5. S. floribunda var. pauciner

EXPLANATION OF PLATE X

S. Robbiæ Vierhapp.

1. Portion of shoot, natural size.
2. Flower, × 2.

S. floribunda K. Schum. var. pauciner Vierhapp.

3. Portion of shoot, natural size.
4. Pair of inflorescence (young), × 2 (see p. 15).
5. Flower, × 2.

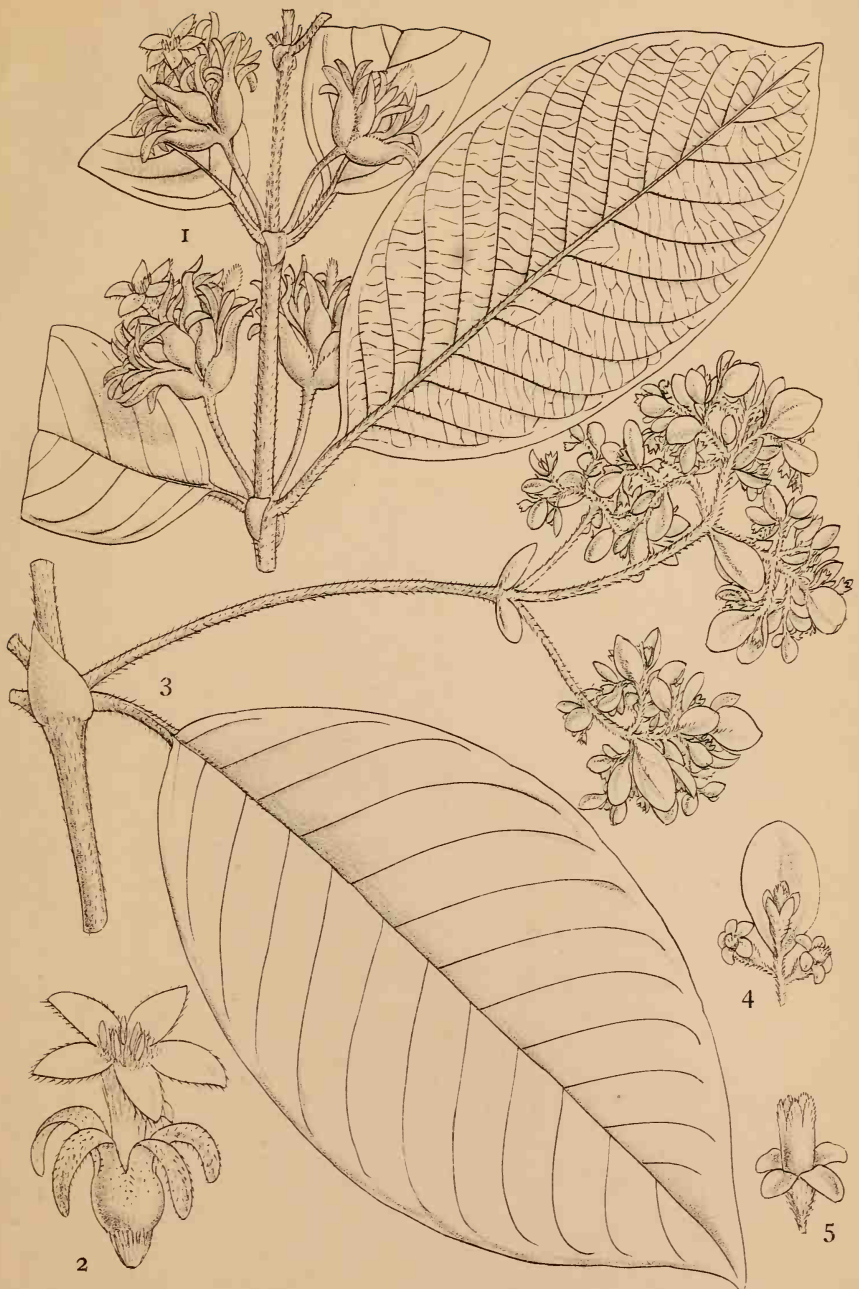
EXPLANATION OF PLATE X

S. Robbii *Wernham*

1. Portion of shoot, natural size.
2. Flower, × 2.

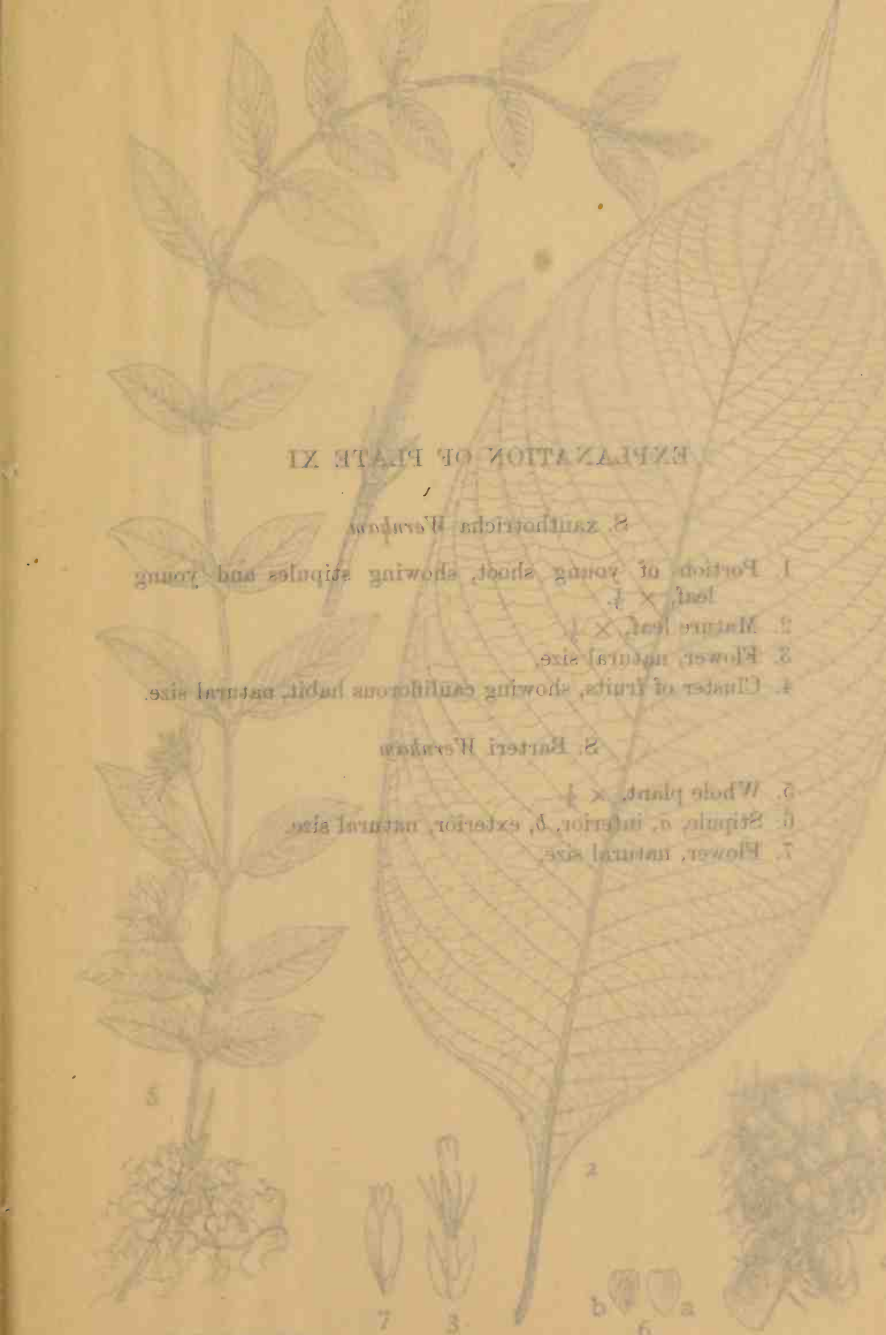
S. floribunda *K. Schum.* var paucinervis *Wernham*

3. Portion of shoot, natural size.
4. Unit of inflorescence (young), × 2 (see p. 15).
5. Flower, × 2.



J. N. Fitch del. & lith.

1, 2, S. Robbii. 3—5, S. floribunda *var.* paucinervis.



1—4. S. xanthotricha. 5—7. S. Barteri.

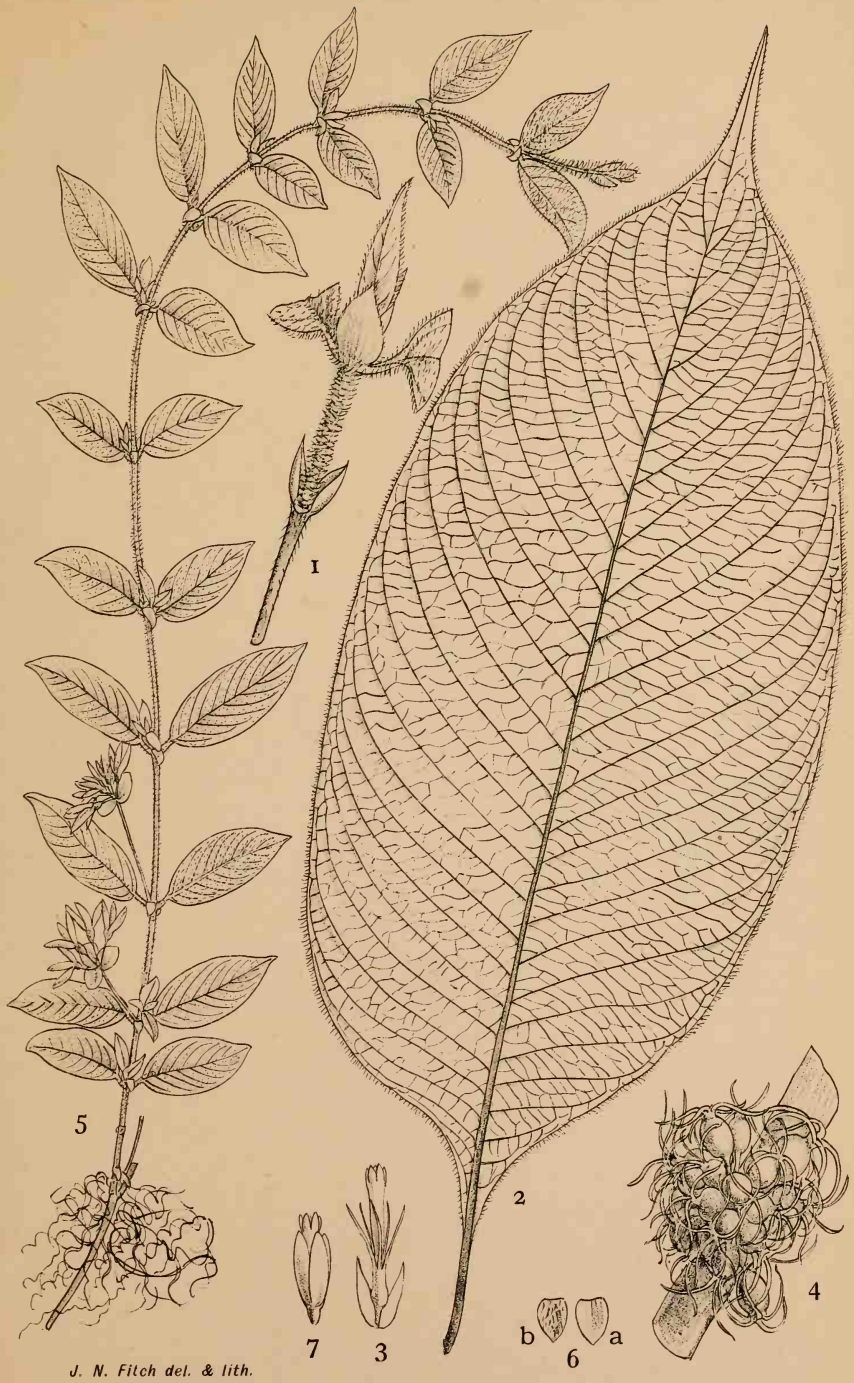
EXPLANATION OF PLATE XI

S. xanthotricha *Wernham*

1. Portion of young shoot, showing stipules and young leaf, × $\frac{1}{3}$.
2. Mature leaf, × $\frac{1}{3}$.
3. Flower, natural size.
4. Cluster of fruits, showing cauliflorous habit, natural size.

S. Barteri *Wernham*

5. Whole plant, × $\frac{1}{3}$.
6. Stipule, *a*, interior, *b*, exterior, natural size.
7. Flower, natural size.

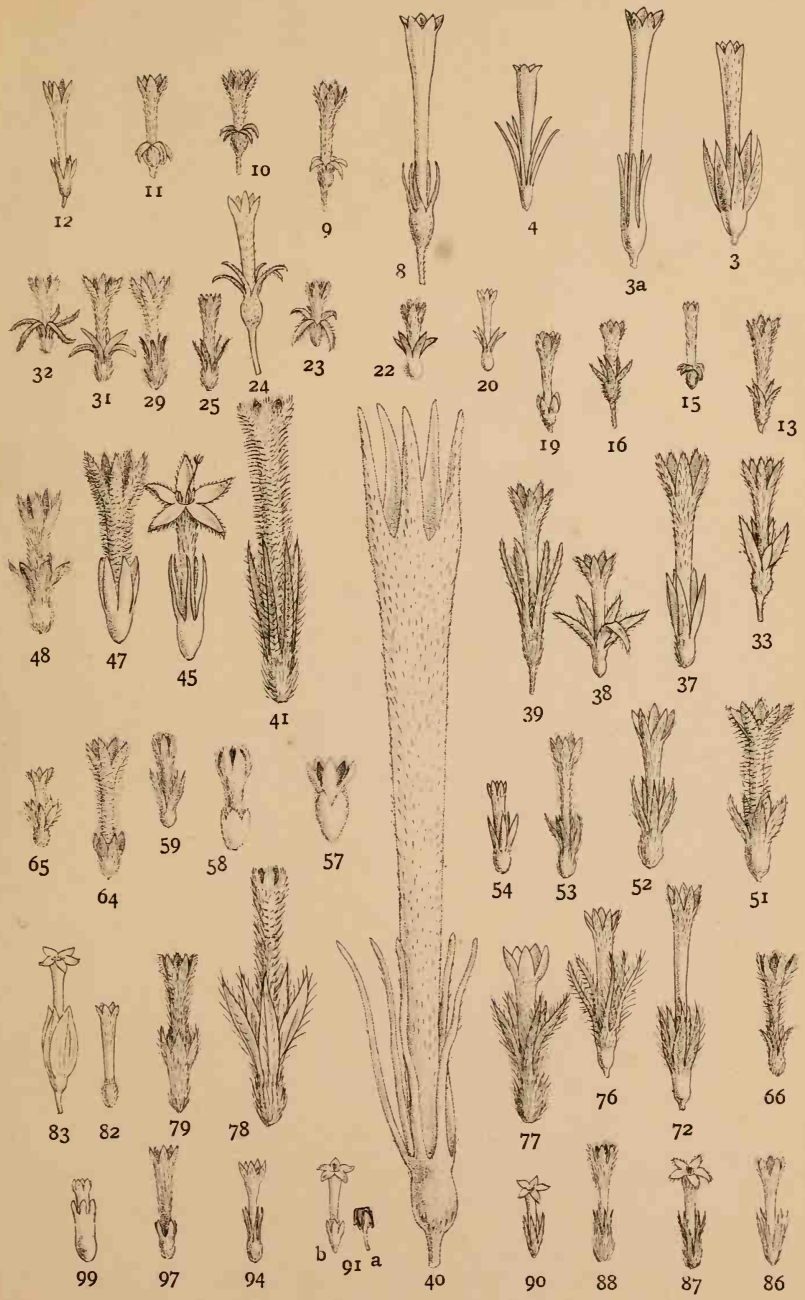


1—4, S. xanthotricha . 5—7, S. Barteri.

Flowers of each species as numbered; natural size.

EXPLANATION OF PLATE XII

Single flowers of species numbered according to the text, all natural size.



J. N. Fitch del. & lith.

Flowers of each species as numbered; natural size.

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